

**REPORTING PUBLICLY ACCOUNTABLE PERFORMANCE MEASURES OF  
QUALITY IN HEALTH CARE**

**REVIEW OF EXISTING DATABASES IN RHODE ISLAND  
FOCUSING ON THE HOSPITAL SETTING**

Prepared for: The Rhode Island Department of Health (HEALTH)



**100 Roscommon Drive  
Middletown, CT 06457**

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# Project Team Members

**Jeanne D. Scinto, PhD, MPH**

Director of Analysis and Medicare Quality Improvement, Qualidigm

**Tierney E. Sherwin, MPA**

Health Information Analyst, Qualidigm

**Judith K. Barr, ScD**

Director of Education and Health Services Evaluation, Qualidigm

**Marcia K. Petrillo, MA**

CEO, Qualidigm & Rhode Island Quality Partners

**Edward Westrick, MD**

Principal Clinical Coordinator, Rhode Island Quality Partners

**David R. Gifford, MD**

Clinical Coordinator, Rhode Island Quality Partners

**Kathryn M. Harrison, CPHQ**

Project Manager, Qualidigm

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## **STATEMENT OF PURPOSE**

The General Law of Rhode Island, Section 23-17.17, the Rhode Island Health Quality Performance Measurement and Reporting Program (HPQMR) was passed in 1998. It requires public reporting on the quality of health care delivered in all settings of care licensed by the Rhode Island Department of Health (HEALTH). This is an extensive and complex challenge.

One of the key tasks related to implementing this legislation is to identify existing databases that, in whole or in part, can contribute to this public reporting and quality effort. This report describes the databases available in Rhode Island that may be useful to support this purpose. It includes a complete scan of databases related to the hospital setting and a preliminary scan of databases in other health care settings.

The purpose of this initial database scan is to consider how well suited each of these existing databases may be to producing quality measures pertaining to inpatient hospital services. Additional work is required to determine the suitability of these data sources, and the associated measures that can be obtained from them, for public accountability purposes.

## **METHODOLOGY**

With input from the Rhode Island Department of Health (HEALTH) and the HPQMR Measures Subcommittee, Qualidigm identified the potential databases for inclusion in the review process. It includes databases in both government and non-government sectors. For a listing of the databases and interviewees, see Appendix A.

The review included an interview with the individual(s) responsible for each database. A standardized set of questions was created to facilitate a structured interview process. Input from the Measures Subcommittee was incorporated before the set of questions was finalized. A copy of the interview form is included in Appendix B.

The interview covered the following pertinent areas:

- general questions to provide insight into the primary purpose and most frequent users of the database;
- questions about the content of the database;
- questions regarding the structure of the database;
- questions related to the accessibility and availability of the database; and
- questions related to how the database is analyzed and reported.

A total of 20 databases were reviewed during 23 interviews. Fifteen interviews were completed face-to-face; eight were completed by telephone. The interviews took approximately one hour each.

In presenting the results of the scan, the databases are grouped into one of three categories:

- databases which are potentially useful with moderate work to adapt them
- databases which are potentially useful with extensive work to adapt them
- databases which are of no value to the current effort.

Those which are potentially useful with moderate work are defined as those from which performance measures are currently produced. Potentially useful with extensive work refers to databases that include data elements from which performance measures could possibly be produced. And, finally, databases identified as of no value, lack data elements to produce performance measures or cannot otherwise be used.

In general, the results of the interviews show that there are a number of databases currently available, which could contribute to the generation of performance measures and could be helpful for facility-specific internal quality programs. These, however, need to be enhanced and/or supplemented from other database sources to support the public accountability purpose of the legislation.

## **MEASUREMENT SYSTEMS**

In addition to databases produced in Rhode Island, Qualidigm also considered four existing measurement systems to which Rhode Island contributes data. This was done to provide the context in which Rhode Island operates, though other measurement systems may be used in the future. These systems will contribute, to a greater or lesser degree, to the Rhode Island public reporting initiative. They are described below.

### **1. HEDIS (Health Plan Employer Data and Information Set)**

The National Committee for Quality Assurance, a national effort of large employers to develop a system for public reporting of performance measures for managed care plans, has designed and implemented the HEDIS system. HEDIS is a national, standardized set of performance measures used to compare managed care health plan performance. It permits plan-to-plan comparisons on clinical, financial and utilization data. The HEDIS 2000 domains cover the following performance areas: Effectiveness of Care, Access Availability of Care, Use of Services, Satisfaction with the Experience of Care, Health Plan Stability, Cost of Care, Informed Health Care Choice and Health Plan Descriptive Information. HEDIS is applicable only to managed care plans.

The measures included in HEDIS may be grouped in two categories when considering their use in reporting across hospitals: measures that are population-based and cannot be used for reporting across hospitals and measures that may useful be for reporting at the hospital level. The experience of hospital performance measurement reporting in Vermont has shown that it is as a realistic possibility to adapt some HEDIS measures to the hospital setting.<sup>1</sup> For example, The

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<sup>1</sup> The Vermont Health Care Quality Report, The Vermont Program for Quality in Health Care, Inc., May 1997.

Vermont Health Care Quality Report presents the cesarean section rate and vaginal birth after a previous cesarean section (VBAC) rate by each of 12 Vermont hospitals over a three-year timeframe. Other measures, however, such as the age-adjusted rate of pediatric hospitalization for respiratory infection and asthma, congestive heart failure (CHF), and coronary artery bypass graft (CABG), are presented by hospital service area rather than by individual hospital. HEDIS measures may also be useful in meeting the requirements of the Health Care Accessibility and Quality Assurance Act of 1998, The General Law of Rhode Island, Section 23-17.13 as it applies to reporting on health plan quality.

## 2. HCUP 3 (Healthcare Cost and Utilization Project) Quality Indicators

HCUP 3 is a national hospital database with an accompanying health care quality measurement system for the inpatient hospital setting. The system was developed by a federal agency, the Agency for Health Care Policy and Research (AHCPR), and has been in place since 1994. The advantage of this system is that it is a low-cost and user-friendly method for performance measurement reporting. It uses hospital discharge data supplied on a voluntary basis by participating states or systems through individual hospitals. The 33 measures listed in Appendix C are divided into three parts: adverse hospital outcomes, appropriateness of utilization of hospital-based procedures, and access to primary care determined by admissions that may have been avoidable. The system requires the following data elements to generate quality indicators: diagnoses, procedures, age, gender, admission source, discharge status and procedure dates.<sup>2</sup> AHCPR has not developed a severity adjustment system to accompany its quality indicators. However, it has developed a method for states or hospitals to compare themselves against national benchmarked rates. The measures were developed for the purpose of highlighting areas that may require more in-depth investigation. This system may be useful for public reporting. In fact, there are several states, including Utah, Hawaii, and Colorado, that publish HCUP data. An AHCPR funded study is currently under way at Stanford University and the University of San Francisco to address issues regarding the development of new measures as well as risk adjustment systems. Currently, 22 states participate in HCUP data collection, Rhode Island is not one of the participating states.

## 3. PRO (Peer Review Organization) Measures

The PRO program is part of the Social Security law and requires the Health Care Financing Administration (HCFA, the federal agency which oversees the Medicare and Medicaid programs) to contract with a quality improvement organization in each state to evaluate and improve the quality and utilization of health care services paid for by Medicare.

The PRO contract for Rhode Island is held by Rhode Island Quality Partners (RIQP). As part of the Peer Review Organizations' 1999 - 2002 contract with the HCFA, six clinical areas have been identified in which the PROs and their collaborators will focus much of their quality improvement effort. The six clinical areas are: Acute Myocardial Infarction (AMI); Pneumonia; Congestive Heart Failure (CHF); Stroke/Transient Ischemic Attack/Atrial Fibrillation; Diabetes; and Breast Cancer. The first four conditions are focused primarily on inpatient care.

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<sup>2</sup> Journal on Quality Improvement, February 1998, Johantgen, Meg et al. p. 95.

A set of indicators to measure quality has been developed for each of these conditions. These measures are based on scientific evidence which has proven that using selected processes of care to treat patients with a specific condition improves the potential for good outcomes (lower morbidity and mortality, etc.). These indicators may be candidates for public reporting and are also being considered as possible core quality measures by the Joint Commission on the Accreditation of Healthcare Organizations (JCAHO), a national voluntary accreditation program used by hospitals. See discussion below, for further information on JCAHO's Core Measures.

#### 4. JCAHO Core Measures

In response to the need for measuring quality, JCAHO developed the ORYX initiative, which requires health care organizations accredited by JCAHO to report data that reflect the quality of care they provide. This is done on a quarterly basis. These data will eventually be incorporated into the JCAHO survey process for accreditation. At this time, the initial ORYX program is being refined to establish several core measures sets that will be standardized across the country. Included in the conditions for which these sets will be developed are three of the four inpatient conditions HCFA has selected to work on (AMI, CHF, and Pneumonia).

HCFA and JCAHO are working together to align the quality indicators for these conditions as much as possible between the two organizations. HEALTH, the Hospital Association of Rhode Island (HARI), Qualidigm and Rhode Island Quality Partners, Inc., have been working with HCFA and JCAHO to support this concept. This collaboration should result in a set of indicators that may fulfill the following: form the foundation for an initial set of clinical measures for hospitals required by the HPQMR law; meet some of HCFA's quality improvement requirements in the PRO program; and meet hospital JCAHO/ORYX accreditation requirements while minimizing the burden on hospital resources.

### **DATABASES: DESCRIPTION AND ANALYSIS**

This section describes the databases that are available in Rhode Island. They are presented in three categories as described previously: potentially useful with moderate work; potentially useful with extensive work; and no value to the current effort. A summary of the information described in detail below is presented in Appendix D. An overview of all databases defined by these categories is presented in the table on the following page.

<b>DATABASES COVERED IN INTERNAL SCAN: Evaluation Matrix</b>	
<b><u>INPATIENT HOSPITAL SETTING</u></b>	
<b>POTENTIALLY USEFUL WITH MODERATE WORK</b>	
Death Records Hospital Discharge Data Perinatal Center Data Base Health Facility File Maternal and Child Health Data Newborn Developmental Risk Screening/Home Visiting Linked Infant Death File Cardiac Services Registry Medicaid Management Information System	
<b>POTENTIALLY USEFUL WITH EXTENSIVE WORK</b>	
Large Hospital – Utilization Management/Discharge Planning Data Large Hospital – Laboratory Data Large Hospital - Pharmacy Data Small Hospital Mental Health/Rehabilitation Data Cancer Registry Traumatic Brain Injury	
<b>NO VALUE TO THE CURRENT EFFORT</b>	
KidsNet	
<b><u>OTHER SETTINGS</u></b>	
Nursing Home Data: OSCAR MDS Home Care Data: MDS OASIS	



### **Potentially Useful with Moderate Work**

The primary criterion for this category is whether or not process or outcome measures are currently being produced or can be produced with moderate effort from a given database. Further, the reports provided from the database must be reliable as demonstrated through rigorous and standardized validity checks. Nine of the databases evaluated are potentially useful with moderate work.

### **Hospital Discharge Dataset (HDD)**

This database allows for review of utilization patterns in Rhode Island hospitals. It is also used for public health reporting purposes. Since October 1989, hospital licensure regulations require all hospitals to report data on every inpatient discharge. Initially, the two psychiatric hospitals, Butler and Bradley Hospitals, and one rehabilitation hospital (Rehabilitation of Rhode Island), received a waiver exempting them from this requirement. These three hospitals have been reporting their data since October 1998.

A cooperative arrangement between HEALTH, HARI (Hospital Association of Rhode Island), and HCIA (a data processing vendor) exists to collect Hospital Discharge Data (HDD) in Rhode Island. Currently, eleven acute-care general hospitals submit quarterly data to HARI. Primary data editing and processing is done by HCIA. As of the quarter ending December 1999, HARI will submit these data to HEALTH on a quarterly basis on behalf of the hospitals.

The public use database does not track patients by a unique identification number. Rather, hospitals use their own unit record system to track patients. Thus, if one were interested in tracking a patient admitted to multiple hospitals over a period of time, it would be necessary to rely on patient date of birth and gender to determine if one patient was admitted to multiple hospitals. Further, some hospitals have used different serial numbers for each hospital stay, rather than a patient specific number, making it difficult to report readmission rates within hospitals.

HEALTH receives approximately 15-20 requests per year for copies of the discharge data for public reporting (patient identifiers are not included). In addition, requests are made by researchers who go through an Internal Review Board (IRB) process or have a confidentiality/contract agreement with HEALTH, in order to gain access to data that include patient identifiers. The most recent period of data available is discharges through September 1998. Those interested in an annual hospital discharge data tape are charged \$100 per year. There is no charge for ad hoc requests that are routine and straightforward.

These HDD data are currently used in a number of ways. A *Utilization of Rhode Island Hospitals Reports* is produced by HEALTH and includes information primarily on inpatient services. For example, the report includes information on the number of discharges, beds, and so on. The hospitals use the data for market share analysis, while HEALTH uses the data for health planning, epidemiology, etc. These data may be useful as a resource for enhancing the public's

understanding of the hospital system in Rhode Island.

The public release copy of the database allows for the comparison of rates across hospitals. HEALTH runs a standard annual report on each data set, beginning Fiscal Year 1995. This report includes diagnosis and procedure-specific tables so the reports are consistent with publicly available national hospital reports. The accuracy of the database is assessed by the vendor, HCIA, using a set of simple linking edit checks on each patient record. These checks include such items as female-related diagnosis/procedure codes checked against the patient gender as recorded on the claim. In addition, once the database is received by HEALTH, several of the data elements are checked against other existing databases. For example, on an ad hoc basis, the discharge category indicating that the patient died in the hospital, is checked against HEALTH's Death Records Database. A similar check is conducted on the accuracy of reported deliveries using HEALTH's Birth Records Database. An annual and routine check is also performed on reported brain injuries against HEALTH's Traumatic Brain Injury Surveillance Database.

The key area that is not being checked at this point is the accuracy and completeness of discharge coding (ICD-9 CM), which identifies the diagnoses and procedures related to each inpatient stay. It should be noted that work is in progress in California and New York to add a sixth digit to ICD-9 CM codes to capture conditions that develop during the hospital stay as opposed to comorbidities at time of admission.

HDD may be utilized with all of HCUP's measures (see previous discussion on HCUP). The limitation is that not all of Rhode Island's hospitals would be included in these measures. For example, the two psychiatric hospitals and one rehabilitation hospital would be excluded from contributing data to these measures. Further, Women and Infant's Hospital of Rhode Island would only contribute data that are useful for public reporting related to obstetric and gynecological measures.

In terms of HEDIS measures, however, HDD data could be reported in a similar fashion for measures such as: inpatient utilization (general hospital/acute care); inpatient utilization (nonacute care); frequency of selected procedures, mental health utilization (inpatient discharges and average length of stay). However, they merely report on utilization of services. It is yet to be determined if such measures could be used for public accountability purposes.

Several hospital data processing vendors have created risk adjustment methods for use with hospital inpatient data, such as the HDD. HCIA is one such vendor that has developed a method for normative comparisons for their risk adjusted complications index and their risk adjusted mortality index (HCIA, 1997). This method uses patient-level data to control for case-mix and severity differences by evaluating ICD-9-CM diagnoses and procedure codes to adjust for severity within case mix groupings. Patients are compared to other patients having similar characteristics, and facilities are compared to other facilities with similar characteristics. The method requires that the HCIA all-payer database be linked with the American Hospital Association and Medicare cost report data sets. Using the HCIA method, complication rates for six patient risk groups may be generated: major surgery; minor surgery; invasive cardiac

procedures; endoscopy; medical patients (without major or minor surgery); and all patients. DRG-specific and ICD-9-CM-specific mortality rates may be created as well. This administrative data source will likely be useful in the production of the JCAHO core measures sets associated with pregnancy and surgical procedures.

### **Perinatal Center Data Base**

This is a hospital discharge data file maintained at the National Perinatal Information Center (NPIC) in Providence, Rhode Island. Hospitals throughout the United States with newborn Intensive Care Units (ICU), participate with the NPIC on a voluntary basis. NPIC offers two principal services to their clients. The first is the production of NPIC Perinatal Center reports. NPIC receives hospital discharge data, cleans it and reports out on each hospital's information quarterly. The reports present a given hospital's performance on a wide range of measures compared to its peers and to the aggregate of all hospitals that participate in this service. Secondly, NPIC is a JCAHO ORYX vendor. Hospitals receive analyses of the 54 NPIC measures approved by JCAHO (listed in Appendix E). NPIC forwards a subset of these measures directly to JCAHO on behalf of each participating hospital.

The Perinatal Center Data Base (PCDB) has collected discharge data on participating hospitals since 1985. The data source is hospital discharge abstract data and the hospital's billing system. Hospitals submit data on a quarterly basis, through a Web based delivery system or other media according to the hospital's preference. In any given year, approximately 50 hospitals participate in submitting data to the PCDB. On average, a total of 20,000 discharges are submitted by each hospital each year.

The data are run through NPIC's proprietary validation software to perform "reality checks" that assure the each variable is within acceptable ranges. Also, the data are cross-referenced to ensure that reasonable information is produced from the data (e.g., an accurate count of deaths). Included in these edits is a check of potential duplicate records. Once the data cleaning process is complete, hospitals receive a validation report that highlights portions of the data that are out of the acceptable range. Hospitals correct the erroneous data if needed and sign off on the validation report.

The data library maintained by NPIC is supplemented with other data sets including the American Hospital Association's database and state discharge abstract data. In addition, multiple methods are used for risk adjustment including the All Patient Refined DRG grouper developed by 3M. Further, the financial data encompass charge data across 11 different categories (e.g., surgery, labor and delivery, radiology, laboratory, pharmacy and other ancillary charges). The database includes the patient medical record number, used in NPIC's readmission reports and permits tracking patients within hospitals over time. Additional fields, such as birthweight and a mother-infant record link, are also captured.

The data are not released to outside researchers. Instead, NPIC contracts or collaborates with private researchers who use the data in report format for studies. Two groups of member

hospitals collaborate to share data in report format for quality improvement purposes.

While the NPIC does report on utilization, cost and outcomes data related to perinatal services, their reporting systems are not limited to perinatal health care. In fact, the quarterly reports cover all services and provide information on utilization, financial and outcomes measures. The most recent period of data available is July 1, 1998 through June 30, 1999.

### **Health Facility File**

This is a licensure file that contains information on all licensed healthcare facilities in Rhode Island. It is used solely as a contacts database for mail merges and phone numbers. The file includes the facility name, address and owner information. The data is in a UNIX system. However, as of October 1999, the data was transitioned to a Windows format. License 2000 is the name of the Health Facilities File which was converted from a UNIX platform to a Windows-base environment permitting all agencies at HEALTH to access the same data using the same software. There are no confidentiality regulations associated with this file and there is no charge for access to these data.

The Facility File contains information on facility type, number of beds, license type and information on participation in Medicaid and Medicare, as well as the number of special units in the facility. Data are available at the end of February for the previous year. The Division of Facilities Regulation routinely responds to internal and external requests for data from this file.

While this database is of no value to HQPMR as a stand-alone, it could be used to support other databases to produce a more descriptive evaluation of the facilities covered by a performance measure.

### **Maternal and Child Health Data**

This database is maintained by HEALTH (in the Division of Family Health). Its purpose is to track maternal and child health indicators in Rhode Island and to assess the health status and well being of children and their families. The sources for the data include the following: birth file, induced abortions, fetal deaths, deaths and inpatient discharges databases. The discharge database is limited to aggregate discharge data for newborns through 5 years of age.

There are two levels of data availability: public release (without patient identifiers) and research (contains patient identifiers). There is no fee for accessing these data.

Currently, the data collected in this file are reported regularly in the KidsCount Factbook. Previously, the data were reported in the Maternal and Child Health Databook. Measures such as the proportion of women with delayed prenatal care, low birthweight infants, infant mortality, child abuse, and the teen pregnancy rate are included in the report. These data are reported by city/town, not by facility. The data may also be reported by demographic and socioeconomic indicators, such as the percent of single mothers and percent of births to women with less than a

high school education. Data may be analyzed at the condition level, but not at the patient level. This data set is also used to report on children with special healthcare needs and unintentional injuries.

The Maternal and Child Health Data may be used with the following HCUP measures: low birthweight, very low birthweight and cesarean section delivery. The HEDIS low birth weight babies measure could be reported from this file. The data may also be useful in the production of the potential JCAHO Core Measures set for pregnancy and related complications/outcomes.

### **Newborn Developmental Risk Screening and Home Visiting**

These databases are maintained by HEALTH (in the Division of Family Health). They are event occurrence databases that identify newborns at risk for developmental delay in accordance with federal regulations. The files are patient-specific and provide information on children and their risk status. Screening criteria are used to make the determinations and are based on existing medical conditions (e.g., birthweight less than 1,500 grams) and demographic variables (e.g., mother's age less than 19 or greater than 37), reported by the hospitals to HEALTH.

A newborn risk screening is performed for all infants born in Rhode Island. The results of the screens are entered into the Newborn Developmental Risk Screening database. Newborn cases identified with a risk status of positive or suspect are entered into the Home Visiting database. In addition, infants who are not risk positive or risk suspect, or those infants born outside of Rhode Island, may be referred to the Home Visiting Program and receive visits which are then entered into the Home Visiting database.

The files are maintained in Focus software, and the Newborn Developmental Risk Screening and the Home Visiting Databases are joined and housed in Oracle. The data are linked to the Home Visiting Database, as children who are at risk receive one home visit within the first six months after they are assessed, and additional visits are provided as needed. Data are updated at least weekly. The data are entered by VNA nurse abstractors at the hospital, and the data are uploaded weekly to the master file.

Once the data are imported into the file an edit report is run to make sure that invalid entries are corrected by the time of the next submission. Further, the data are compared to the vital records database to make sure there is consistency between the two. Internal reports are generated on a quarterly and year-end basis. No public reports are generated on a routine basis. Ad hoc requests are received frequently and reports are generated at no cost. Data are available for public use without patient identifiers. Patient specific data are available for research purposes with IRB approval.

The database captures information on the child's APGAR score, birth weight and risks assessment. Information about the mother, such as date prenatal care began and number of prenatal visits is also included. Data from the Newborn Developmental Risk Screening database are available beginning 1993, but 1994 is the first full year of "good" data. Data from the Home

Visiting Database are available since 1995.

The database is used to report on 18 Federal and 10 State performance measures (see Appendix F for a complete listing). The Newborn Development Risk Screening database may be used to derive the low birthweight, cesarean section delivery and successful vaginal birth after cesarean section (VBAC) HCUP and HEDIS measures. Also, this database could be used to develop HEDIS type measures for the prenatal care in the first trimester and initiation of prenatal care. Again, however, whether these reflect hospital quality has yet to be determined.

### **Linked Infant Death File**

This database is maintained by HEALTH (in the Division of Family Health). It links data on infants who died in the first year of life. Initially, it was constructed to collect data as a subset of the infant mortality database. From the period 1983-1987, it captured a minimal number of data elements about residents who were born in Rhode Island. Since that period, it has incorporated additional elements for reporting on birth and infant related indicators. The primary data sources for this database are vital records, birth files, birth certificates and death certificates. It is useful for condition-specific research pertaining to infants.

The database is maintained in Paradox and contains roughly 100 records per year. Data are entered by HEALTH staff who rely on information from vital statistics' birth and death records for updating the database.

A complete database is available for the period 1992 through 1997. Data for 1998 are provisional, as out-of-state births have not as yet been received.

The data are available in two forms: at the public release use level (no patient identifiers), and patient-level data which are available for research after IRB approval. There is no charge for obtaining these data.

Reports provide information on the following elements: reason for death, very low birth weight rates, number of prenatal care visits, and APGAR score. Internal reports are prepared regularly for the purpose of surveillance. For example, infant mortality rates are produced on a county/town basis. Other measures reported from the database are: neonatal deaths (within first 28 days of life); and post neonatal deaths (between 28 and 364 days of life). Special analyses are conducted on an as-needed basis.

Given that the data are collected only on infants who die in the first year of life, HCUP and HEDIS measures are not applicable for this database. JCAHO Core Measures related to pregnancy might be obtained from these data, depending on the specific measures selected.

### **The Cardiac Services Registry**

The Cardiac Services Registry is maintained by HEALTH and was created to collect information

about the utilization of invasive cardiac services in the state of Rhode Island. It is used to assess the appropriateness of services, the distribution of services across the population and the outcome of procedures. The procedures include: cardiac catheterization for coronary angiography, coronary angioplasty (PTCA) and all open-heart surgery procedures (CABG, heart valve replacement, etc.). Through a contractor (Clinical Trials and Surveys Corporation), data are collected from each hospital and then provided to HEALTH after confidential fields are removed. The hospitals involved have requested the data, and HEALTH has published an initial report on utilization, with another to be issued soon.

The Registry contains three years of data (1995-1997). It is an ORACLE relational database that can be exported to a number of file types including SAS format. There are built-in software edits in the system. Also, the contractor performs an audit of a sample of records from each hospital that have been reabstracted. Further, some records are data entered twice to catch data entry errors. There are two basic files involved. There is a patient level demographic file and a file that contains clinical information for the procedures. The clinical file has some comorbidity information, but only those which are considered risk factors for heart disease. The file has a unique patient identifier that is a combination of the patient name and birthdate. This may be useful for linking to other external databases. The data can be released if patient identity is masked and certain categories are grouped to maintain patient confidentiality.

The first report was produced showing the utilization of services during 1995 and 1996. A report covering utilization in 1997 is forthcoming. In September 1999, an outcomes report was produced from the data, covering Calendar Years 1995 through 1997. The risk adjusters used are the same as those used by the New Jersey Department of Health. The outcomes included are: in-hospital mortality, infection rates, emergency surgery after PTCA, and the incidence of stroke and myocardial infarction.

The Registry information may be useful for the performance measures related to cardiac procedures discussed previously. However, the registry may not be continued in its current form.

### **Medicaid Management Information System**

The MMIS (Medicaid Management Information System) database is maintained by the Rhode Island Department of Human Services (DHS), Division of Health Care Quality, Financing and Purchasing. The system is mandated by federal and state regulations as part of the Medicaid Program. It is an interactive system primarily used for the payment of services for the more than 100,000 recipients eligible for Medicaid in the state of Rhode Island. This includes services provided under the RItCare Medicaid Managed Care program.

The MMIS database is a very large relational database. Various items are in individual tables that are linked by key fields common to each table. The system is administered by EDS (a data processing vendor) through a subcontract with the Department. All information related to the Medicaid program is housed in this database. There is an eligibility section, which provides information such as demographics, address and eligibility dates. The system also contains all of

the fee-for-service claims information, such as HCFA 1500 data elements for physicians' services, UB-92 data elements for facility services, as well as information related to long term care, durable medical equipment, transportation, and any services that are covered by the Medicaid program. For RItCare, the managed care program, EDS receives encounter data from the managed care plans. A prior authorization database for hospitalizations is another component of the system.

Information can be tracked by an internally assigned patient identifier. However, this identifier is randomly generated which does not allow linking to other databases. The system does capture the recipient's social security number, which could potentially be used for linking to other databases. There are numerous edit checks and audits that are performed through the whole claims payment process, for fee-for-service data. Edits are also performed on the managed care encounter data.

The MMIS data are available from the DHS via written request. The staff at DHS prioritizes requests and forwards them to EDS for processing. The consultant firm, Birch-Davis, creates numerous reports from an extract of the RItCare data tables. Given the confidentiality and sensitivity of the data, a data release agreement must be signed before data are released. There is no charge at this time for obtaining reports, but that may change given the scope of an individual request. Currently, there are approximately six years of data available on the active system.

The database supports standardized reporting for internal program management purposes. The reports contain financial and utilization information. Reports are also created for other state agencies.

This database could be used for administrative data based performance measures. However, it would only report on the Medicaid population. HEDIS type measures that do not rely upon chart review could potentially be developed from the database, as could any measure set that is derived solely from claims data.

### **Potentially Useful with Extensive Work**

Databases that are not currently reporting performance measures, but that have the capability for constructing measures at some point in the future are in this category.

Seven of the databases evaluated may have some utility in the future for performance reporting. Included in this category are hospital data systems which generate information to manage various ancillary services. As part of the internal scan, the hospital data systems for a large hospital, a small hospital and a rehabilitation/mental health hospital were reviewed. These facilities were chosen to reflect the various sizes of hospitals in the state.

### **Large hospital:**

The large hospital that was visited has a sophisticated and complex information system. Representatives from the utilization management and coordinated care system, the laboratory



system and the pharmacy system were all interviewed.

### **The Utilization Management and Coordinated Care System**

This system is a product of HCIA called EQCEL that allows for the synthesis of data from both the utilization management function and the claim coding function of the hospital. It maintains information on all patients in the hospital regarding Utilization Management (UM) issues. Concurrent review results are entered daily as are interim DRG (Diagnosis Related Group) assessments. The database includes data related to clinical issues and care plans, as well as information needed for billing purposes.

The database includes seven years of data for all discharges and outpatient encounters. The software for the system is proprietary to HCIA. However, data can be exported in a number of formats, including ASCII. Demographic and clinical information is collected and maintained in the system. The clinical information is mostly narrative used for care plans and the like. Patients are identified by a unique medical record number that follows them across all hospital encounters. This medical record number cannot be used to link the patient to external systems. Data from the system are available if requested with the appropriate authorization of the hospital's administration.

A number of checks are applied to the data for accuracy and validity, both by the hospital staff and within the system's software. The system also has numerous edit checks built in to ensure proper data entry. The data abstracted from medical records for entry into the system are randomly reviewed by supervisor-level personnel.

The system is unique in that it provides the hospital with risk-adjusted analyses. The HCIA product does its own risk adjusting, so that utilization can be measured in this manner. Many different reports can be produced including: length of stay analyses, frequency of emergency department visits, appeals to, and denials from insurance companies and health plans, etc.

This system could be used for performance measurement that relies solely on administrative data. Since the system is used only in one hospital, it could not be duplicated in facilities that do not purchase this HCIA product.

### **The Laboratory Database**

The computerized laboratory in this hospital department is an in-house system that allows for the collection and analysis of all laboratory tests and pathology examinations performed by the hospital, both inpatient and outpatient. There are two data systems, as the pathology data are processed separately from the laboratory test data. This information is linked to the other systems in the hospital by a unique medical record number. This gives both unit nurses and physicians access to laboratory/pathology results. Unit nurses and physicians do not have access to Pathology results online;

laboratory test results are available online.

At any point in time, there are two and one half years of data available (historic data are archived nightly) on the system. There is a total of 16 years worth of data available from the system, of which 13.5 years are on off-line media. This is a relational database structure and extracts may be created in various formats. Data are available to external requestors with authorization of the hospital administration.

Some data are entered by laboratory technicians and clerical staff. For some laboratory tests, the data are interfaced directly between the instruments performing the analysis and the database. These data are checked by supervisory staff for errors, by looking at results held in a temporary storage area in the database. Data entered by clerical support are also reviewed by supervisory staff.

This database could potentially be useful for providing data on tests performed and actual lab values should inpatient measures be developed based on this type of information.

It should be noted that the sophistication of this laboratory system may not be reflective of other facilities in the state.

### **The Pharmacy Database**

The computerized database in this hospital is a stand-alone system. It is used to collect physician orders for medications. It interfaces with an automated dispensing system that allows nursing staff to access medications directly on their units. The database is used to monitor dispensing patterns, drug interactions, and patient allergies.

The system is from the vendor McKesson/HBOC. It is capable of performing queries, which may be used to provide extract files in ASCII format. The system does not allow for automated transfer of information to other hospital systems, although data elements such as demographics are fed into it from other systems. The database has 750 days worth of data online, with archiving performed nightly. The data are entered by pharmacists and technicians. The technician-entered data are double checked by a pharmacist. The system checks for drug interactions and dosing range errors.

The database is used for reporting both within the pharmacy department as well as outside of the department. Each day the nursing units receive a list of all medications per patient, with active orders on the medication administration record. A report is created to look at potential cost savings and efficacy of switching from intravenous to oral medications. Drug utilization is also tracked, as are the standard adverse reactions that need to be reported to either the FDA (Federal Drug Administration) or CDC (Centers for Disease Control).

If these data could be linked to other hospital databases, they would potentially provide

an administrative source of medication-based performance measures. This would include measures in the PRO 1992 – 2002 HCFA contract from which several of the JCAHO Core Measures may be derived. However, the medical record, which contains the MAR, is the best source of information on the actual administration of medication and doses dispensed because once the medication leaves the dispensary, there is no proof in the Pharmacy database of whether the patient received the medication. The comparison of analyses based on administrative data versus chart abstracted data would have to be reviewed before the validity of using administrative data for this purpose could be verified. However, there is some preliminary research done by Michael Pine, MD, MBA, which suggests that this type of administrative data linkage may be a cost effective alternative to chart abstraction.<sup>3</sup>

### **Small Hospital**

In the small hospital interviewed, neither the pharmacy, laboratory nor the discharge planning data are computerized. Plans are in place to computerize the pharmacy data by next year.

### **Mental Health/Rehabilitation Hospital**

A representative of a public rehabilitation hospital in the state was contacted to discuss the data that are collected to support the hospital's performance measurement needs. The representative was in the Mental Health and Retardation Hospital area. The purpose of the data collection is to provide a computerized means to support performance management and quality control. There are five measure sets that are defined: generic measures, ORYX measures, population specific measures, high risk/high volume measures and measures to detect trends and sentinel effects.

The data are stored in a variety of places, mostly on desktop computer systems in Microsoft Access and Excel, and in Delta Graphics software. Patients are assigned a case number which cannot be linked to external databases. The data that are collected encompass typical hospital measure topics, such as nosocomial infections and adverse reactions to medication. Measures specific to the population such as falls, restraints, pressure ulcers and urinary tract infections are also collected. The data collection process does not have any formal error checking, although the abstracted data are spot checked by a nursing supervisor. The database as it currently exists would not be very useful for a statewide based measurement system, as other hospitals probably do not collect the information in the same way.

Another potential source of data for measures is hospital laboratory and pharmacy data linked with the Hospital Discharge Database described above. As part of an effort to determine the extent to which each hospital in Rhode Island captures pharmacy and laboratory inpatient data electronically, a survey of both pharmacy and laboratory directors was conducted. Appendix G

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<sup>3</sup> "The Usefulness of Enhanced Billing Data and Numerical Laboratory Values in Computing Risk-Adjusted Inpatient Mortality Rates," Michael Pine, MD, MBA, et al, Department of Medicine, University of Chicago, NAHDO 13<sup>th</sup> Annual Meeting, January 1999.

contains a copy of the pharmacy systems survey and Appendix H contains the laboratory systems survey. The results show that currently, 14 out of 15 hospitals collect pharmacy data electronically and all 15 hospitals have computerized laboratory databases, though the type of systems vary widely and data are collected primarily for the purpose of tracking cost and inventory rather than for quality measurement. However, these data have the potential for providing input to public accountability measures. A summary of the findings may be found in Appendix I.

### **Cancer Registry**

This registry is maintained by HEALTH. Its primary purpose is to measure the disease burden of cancer in the State of Rhode Island. Collection of data on all newly diagnosed cases of cancer is mandated by state law, and the database includes information on cancer patients since October of 1986. Though aggregate data are available to anyone through the HEALTH Web site, identifiable data (patient specific data) are available only through an IRB approved request. The database is maintained using proprietary software from the Rocky Mountain Cancer Data Systems.

The data are organized at the patient level and are linked to death records on an ongoing basis. Information about the patient's history through the first treatment of the cancer, demographic information, zip code and census tract are some of the available data elements. Data are received for inclusion into the database from 12 acute care hospitals, Harvard Pilgrim Health Plan, independent laboratories, and freestanding surgical centers. Each of these facilities has a tumor registrar responsible for submitting data to HARI. HEALTH contracts with HARI to accept and submit data from these sources on a quarterly basis.

Systems are in place to monitor the completeness of the submitted data. Every case is checked to assure that all fields are filled, and edit checks are performed for internal consistency. Data are merged to avoid duplications (e.g., from hospital and lab), and a system to replace missing information is used. The data have been used to perform geographic analyses of cancer patterns, and reports from the registry are available on the HEALTH Web site. It should be noted that national standards for the quality of cancer registry data have been set by the Centers for Disease Control and Prevention (CDC). In 1995, Rhode Island was one of only 11 states that met the CDC's 95% data completeness standard.<sup>4</sup>

This database has potentially useful information, but it does not relate to the inpatient setting. For example, HEDIS includes testing measures related to follow-up after an abnormal mammogram and pap smear. Also, the cancer registry data may serve as the denominator source for another HEDIS testing measure related to patient satisfaction with breast cancer treatment. Estimation of the HCUP measure on radical prostatectomy and other surgical procedures that may be part of the JCAHO Core Measures set may be obtained as well.

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<sup>4</sup> <http://www.cdc.gov/nccdphp/dpc/npctr/>

## **Traumatic Brain Injury Surveillance**

This database is maintained by HEALTH. It was constructed in response to state law mandating the reporting of hospitalized traumatic brain injury (TBI) patients in Rhode Island. Additionally, the CDC funds an effort among 15 states (including Rhode Island) that collect an expanded set of data elements on cases of TBI to inform the design of prevention programs and to estimate service needs for these expensive injuries.

Each hospital collects traumatic brain injury data via hospital clerks who complete necessary forms. Individual hospitals submit their data to HEALTH. Data submissions are run through a CDC software program to check for inconsistencies and through locally created checking programs. No formal inter-rater reliability checks are completed on the entries made by the specially trained abstractors. Duplicate codings of the same record are compared whenever they occur, and all records are edited for consistency of descriptions recorded verbatim from the original records.

The data are stored in a Filepro database structure. HEALTH converts the data into SAS when it is submitted to the CDC. The original file contains patient identifiers. The copy sent to CDC is stripped of such fields. In 1996, there were 708 events, so the database is relatively small in size as it records one record per event. Some of the additional fields include information on amnesia, neurological abnormalities, level of consciousness, spinal cord injury level, and risk factors such as personal protective equipment.

Two years of data (Calendar Years 1996 and 1997) are available. The data come from three sources: death certificate data, the state mandated reporting system for TBI completed by the hospitals, and the hospital discharge dataset. The lag for updating the database is about 18 months, as the data depend on the hospital discharge database. As of October 1999, Calendar year 1998 data collection began and should be completed by June 2000.

Aggregate tables are available upon request. Any request for the CDC version of the data set must be cleared through the Disability Health Program.

The CDC reports out on data from this database. Some of the measures contained in the CDC's report include: incidence of traumatic brain injury nationally; incidence of TBI-related hospitalizations and deaths in 12 states; and estimated incidence and prevalence of TBI-related disability. Currently, these reports cover the two-year period of Calendar Years 1995-1996. There are plans for HEALTH to present the data in a disability databook in the future.

These data may be useful to produce performance measures specific to the sub-population of patients with Traumatic Brain Injuries.

### **No Value to the Current Effort**

This category is comprised of databases that do not have the potential to be useful for reporting health care quality indicators applicable to the HPQMR Law. One of the databases evaluated was determined to be of little value for current reporting purposes.

### **KidsNet Database**

This database is maintained by HEALTH (in the Division of Family Health). It contains data from nine different sources to track children's use of preventive care services: Newborn Developmental Risk Screening, immunization registry, lead screening, hearing assessment, Women, Infant and Children (WIC), Home Visiting, Early Intervention, Metabolic Screening and Vital Records data. Currently this dataset captures data from pediatricians who represent 50% of the children who were born on or after January 1, 1997. This is because initial efforts have been placed on enrolling high volume providers as the system is rolled out. KidsNet contains a built-in reminder system to make calls to patients' homes as a reminder for parents to bring their children in for preventive care services. Also, families without working telephones have postcard reminders sent to their homes, generated from the KidsNet Database. The purpose of the database is to keep children up-to-date on services, not to monitor physicians. It is useful for outreach purposes to track children's use of preventive care services. The system has had the unanticipated benefit of clearing out the backlog of the providers' claims systems and recovering funds for some practices.

The data are maintained in an Oracle based system and are tied to a provider's billing system. Some of the Community Health Centers and Blue Cross/Blue Shield are connected on line to the system. Data are updated at least weekly.

This database contains a wealth of information pertaining to preventive care services, but any measures derived from it are related to settings other than inpatient hospital care. For example, the database may serve as a source for generating the HEDIS childhood immunization status measure. Therefore, while the database is a tremendously rich source of outpatient preventive health services information, it is not useful for reporting on hospital inpatient performance measures.

### **Other Settings**

In an effort to begin to understand available data sources that may be used to foster the goals of the HPQMR law in other settings, several interviews were conducted with experts in the home health care and nursing home settings.

## **LONG TERM CARE SETTING**

### **OSCAR (On-line Survey Certification and Reporting System)**

This database contains information gathered as part of the state survey process of each Medicare/Medicaid certified health care facility. It includes nursing facilities, intermediate care facilities for the mentally retarded, home nursing care providers, hospice, free standing ambulatory surgical centers, kidney disease treatment centers, and outpatient rehabilitation centers. All such facilities must participate in a survey and, therefore, contribute to the database.

The on-site surveys of nursing facilities are conducted every 9 to 15 months, although if there are any complaint investigations, interim surveys are administered.

The database is comprised of several different sets of information: ownership; number of beds; staffing (FTEs); and the patient mix regarding residents in the home on the day of the survey. It is a national and uniform database. The data are in Cobalt, and Rlink is used in batch mode to communicate with the data. As of February 1999, it is running on a new system (IGS-IBM) with reports run in batch mode. Data are organized by facility. Data from a variety of sources are combined to present a thorough evaluation of the facility. These sources include: resident and facility records; interviews with staff, residents, and family members of residents; and assessments of a sample of residents.

The database is in the public domain, and there is no charge for obtaining the data. The following is a listing of the 17 areas on which facilities are surveyed and upon which deficiency reports are based: 1) resident rights; 2) admission, transfer and discharge rights; 3) resident behavior and facility practices; 4) quality of life; 5) resident assessment; 6) quality of care; 7) nursing services; 8) dietary services; 9) physician services; 10) rehabilitation services; 11) dental services; 12) pharmacy services; 13) infection control; 14) physical environment; 15) administration; 16) laboratory services; and 17) other. A listing of OSCAR Standard Reports is found in Appendix J.

Quality checks are in place to ensure the accuracy of OSCAR at two levels. The first occurs electronically, when the data are entered. If errors are found upon entry, the data entry staff will contact the supervising surveyor who will then contact the facility to correct them. Only valid entries can be uploaded to the database. The second step involves HCFA regional office staff who are responsible for the manual review of each state's OSCAR data. One of the problems with the dataset is that it under-reports short stay patients and over-reports on long stay residents.

The OSCAR data are available on HEALTH's Web site. However, they are not risk-adjusted. In order to create a more comprehensive picture of the quality of care in Rhode Island's nursing homes, it is recommended that the Medicaid and Medicare cost reports, containing data on nursing homes, be combined with OSCAR. These cost reports contain data elements related to the volume of patients, meals, etc.

Reports are generated on facility characteristics and include: provider type; occupancy; total beds; total certified beds; type of ownership; facility staffing information; and resident census.

The data captured also permit the tracking of each facility's history of deficiencies. Reports also profile resident characteristics such as: ADLs (Activities of Daily Living); psychological status; and incontinence.

There are 158 OSCAR standard reports including CLIA (Clinical Laboratory) data. Appendix F provides a listing of all of these reports. Two examples are Reports 3 and 4, which report on Long Term Care facilities and are generated from the database. The OSCAR 3 Report, Facility History Profile, provides facility level information on the number of residents by payer type, total certified beds, prior survey dates, deficiencies found and complaint survey information. It contains provider identification data and all Health and Life Safety Code deficiencies from the last four surveys for specific providers or groups of providers. The OSCAR 4 Report, Facility Full Profile, provides comprehensive and summary information on current and historical survey findings.<sup>5</sup> This report is distributed to the Medical Director of the nursing home and contains information on the number of residents by payer type, type of building, deficiencies, corrections and resident characteristics (e.g., mobility).

### **MDS (Minimum Data Set)**

This is a HCFA database that resides at HEALTH. Collection of MDS data is mandated by HCFA and includes data elements related to the demographics, Activities of Daily Living (ADLs), physical, mental and emotional health of nursing home residents. A listing of the major categories of data collected is included in Appendix K.

MDS was initially constructed for the purpose of reporting on clinical care processes, not necessarily for reimbursement or monitoring purposes. It is used to identify areas for inspection for surveyor's purposes and to identify quality improvement opportunities. Facilities are mandated to report data on all Medicaid certified beds, no matter what the payer source for the particular patient occupying these beds. All Medicare/Medicaid nursing homes contribute to this database as of June 1998. Data are entered by facility data entry staff or nurses.

The file is stored in Oracle in two segments: the type of assessment (initial, quarterly, annual, discharge, etc.); and the specific elements related to the patient being assessed. The database is used to track information on 107 nursing homes that have a total of 10,691 Medicaid beds in the state. It is possible to track patients who are transferred from one nursing home to another. By linking this dataset with HCFA's claims database for hospital, skilled nursing facility, home health and hospice care claims, it is possible to use identifiers, social security numbers or a combination of date of birth and gender, to track patients from the nursing home to the hospital or vice-versa. In fact the match rate is over 90% for linking these files. A similar linking relationship may also be possible between MDS data and Medicare Part B claims and with Medicaid data. However, further research is needed to make a definitive determination on this concept.

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<sup>5</sup> OSCAR Reports Users' Guide Made E-Z, p. 5.3.



There are confidentiality regulations associated with access to the database, and no data have been released to any agencies to date. Even HEALTH, which maintains the database for HCFA, is required to obtain HCFA's approval to use the database. In order to gain access, potential researchers must complete a Data Use Agreement Form. It remains to be determined if external researchers will be charged a fee for accessing these data. In September of 1999, HEALTH applied to HCFA for access to MDS for purposes specifically related to HQPMR. The data use agreement was signed by HCFA in December of 1999. It stipulates that HEALTH may use the data for HQPMR purposes for dates of service November 1, 1999 through October 31, 2004.

HCFA has software that runs edit checks on the data. There is no system in place to check routinely if all patient events triggering an MDS assessment are being reported by each facility. The database has the capability of measuring processes and outcomes and applying a wide array of risk adjusters at the patient level. However, InfoMaker is used for producing reports, but there are no standardized reports generated on a regular basis. Recently, HCFA provided each State Health Department with a software package capable of generating reports on all nursing homes. The software will reside in each nursing home for internal measurement use.

There are numerous vendors that offer software to the individual facilities to capture and submit data to the state. For example, Facilitator is a software package produced by the American Health Care Association (AHCA) that uses MDS data to produce quality indicators. It is used to assist nursing homes in evaluating clinical performance and improving resident care. The quality indicators are JCAHO approved. The purpose of the software is to generate quality of care measures, rather than compare facilities. The measures cover the following areas: accidents, behavioral/emotional, clinical management, cognitive patterns, elimination/continence, infection control, nutrition/eating, physical functioning, psychotropic drug use, quality of life and skin care.

Currently, there are 22 Rhode Island health care facilities using the system; this represents roughly 31% participation by members of the Rhode Island Health Care Association (RI HCA). This software is free to members and costs \$1,000 for non-members.

MDS data may support the generation of quality measures for public reporting. HCFA is currently funding several efforts to further define and expand upon these types of measures.

## **HOME HEALTHCARE SETTING**

### **OASIS (Outcomes and Assessment Information Set)**

OASIS contains information on patients serviced by home health care agencies certified by the Medicare and Medicaid programs. The database is maintained at HEALTH by the OASIS coordinator. Data collection began in the late summer of 1999 on all Medicare patients and will be collected on all who receive services from a Medicare certified agency at some time in the future.

Data are collected by Registered Nurses during a home health care visit to the patient. The data includes administrative and clinical information. The database is updated at least monthly. Like MDS for nursing homes, this database may be useful in supporting the development of quality measures for public reporting. In fact, a pilot project will be initiated by HCFA this fall to determine the utility of OASIS data for internal quality improvement programs in home health agencies.

Data may be reported at the home health care agency level. However, approximately 15% of the home health agencies in the state of Rhode Island are not Medicare certified and, therefore, are not required to submit OASIS data. Therefore, any measures produced using OASIS would exclude a significant portion of the patients receiving home health services.

## **CONCLUSION**

The internal scan reveals that there a number of databases in Rhode Island that may be useful to support public accountability reporting in compliance with the HQPMR Law. Further, the hospitals in Rhode Island do capture, or in one case, are planning to capture inpatient pharmacy and laboratory data electronically. However, significant work will have to be accomplished if these databases can produce reliable and valid measures for the purpose of public accountability.

Research currently being conducted at RAND and Stanford with regard to the utility of administrative data for measuring quality of care will be helpful in guiding this process.

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## APPENDIX A: Interviewees and Databases

<b><u>Interviewee</u></b>	<b><u>Database</u></b>
Jay S. Buechner, Ph.D., HEALTH	Death Records, Hospital Discharge Data and Cardiac Services Registry
Lois M. Beauparlant, Administrative Director of Laboratory	Kent Hospital - Laboratory Data
Howard Dulude, Senior Vice President, HARI	Hospital Discharge Data
Wayne Farrington, HEALTH	Health Facilities File, OASIS, OSCAR and MDS
John Fulton, Ph.D., HEALTH	Cancer Registry
Lynne Harrington, Department of Human Services	Medicaid Management Information Systems
Joseph Lapenta, Department of Mental Health	Mental Health Data
Vince Mor, Ph.D., Brown University	Nursing Home Data
Paula Parker, RI Partnership for Home Care	Home Care Data
Patricia Racioppi R.Ph., Director of Pharmacy	Kent Hospital – Pharmacy Data
Helen Reed, Director of Utilization Management and Coordinated Care	Kent Hospital - Utilization Management/ Discharge Planning Data
Al Santos, Rhode Island Health Care Association	Nursing Home Data
Rachel Schwartz, National Perinatal Information Center	Perinatal Center Data Base
Mary C. Speare, HEALTH	Traumatic Brain Injury
Sam Viner-Brown, HEALTH	Linked Infant Death File, Developmental Risk Screening/Home Visiting, Maternal and Child Health Data, KidsNet

## **APPENDIX B: Structured Interview Form**

Date \_\_\_\_\_  
Time Interview Starts \_\_\_\_\_  
Time Interview Ends \_\_\_\_\_

Interviewee Name:

Title of Interviewee:

Department of Interviewee:

Unit/Office of Interviewee:

Telephone Number:

Name of the Database:

Manager of the Database:

### **General Questions**

1. What is the primary purpose of the database?
2. Is data collection mandated? If so, are all the data elements in the database mandated?
3. Who has access to the data?
4. Who uses the data?
5. Who funds the collection of data? Is it long-term? Does it require renewal of funding?

### **Structure of the Database**

6. What format are the data files in (i.e., Dbase, Microsoft Access, SAS)?
7. What is the size of the database (e.g., # of records/100 megs)?
8. Can you provide us with a printout of the database structure (i.e., data dictionary of all data fields, including variable names and description)?

9. How is the database organized: by patient, physician, hospital or health care facility?
10. What type of variables are collected?
  - 10a. Demographic?
  - 10b. Organizational?
  - 10c. Financial?
  - 10d. Insurance?
  - 10e. Clinical?
  - 10f. Other type of variables?
11. What geographic unit(s) is captured (e.g., zip code, town)?
12. Can individual health care providers such as physicians or hospital clinics be identified, and if so by what variable(s)?
13. Can patients be identified, and if so by what variable(s)?
  - 13a. If there are identifiers for patients, are they or can they be used to link to other databases?
14. Can patient data be tracked over time (e.g., longitudinal vs. cross-sectional)?
  - 14a. If patient level data are available, are the identifiers consistent for the following:  
across events, episodes?
  - 14b. If patient identifiers are encrypted to protect patient confidentiality, are the encrypted ID's consistent for patients over time?
15. Does the database capture/include data on all patients/providers in the population or is it based on a sample of all patients/providers?
16. If the data are based upon a sample of all patients, providers, etc., how was the sampling done for data included in the database (e.g., describe the sampling method)?
17. Have any variable definitions changed over time?
  - 17a. If so, what are those variables?
  - 17b. What were the reasons for changing their definitions?
18. Have there been any other changes over time that affect data elements (e.g., hospital mergers, changes in data collection methods)?
19. Are there any key variables that changed that may present problems linking data over time

(e.g., change in hospital ID number)?

20. Are there multiple records per encounter/case? If so, what is in the header? How can these be linked for one person, one visit, etc.?

## **Accessibility and Availability of the data**

### Data Availability

21. How many years of data are available?

22. What is the most recent period for which complete data are available?

23. How often are data collected and submitted to the database (e.g., monthly, yearly, etc.)?

24. What is the time lag to receive data from the source? What accounts for this processing lag?

25. Are there confidentiality regulations associated with access to the database?

### Data Accessibility

26. Does the Department of Health have access to this database; could Qualidigm obtain access as a DOH contractor?

27. Can data be released at the patient-level, provider-level or place of service-level?

28. Is there a charge for obtaining data? If so, what is the charge?

29. In what form may a subset of data be exported for analysis by another party? (e.g., .csv, .dat)

30. How are data made available to others: data tapes, computer disks, etc?

31. How difficult would it be to receive periodic data updates as the database is updated?

### Data Storage

32. Who submits data to the database? (e.g., hospitals, etc.)

33. How are the data submitted to the database (e.g., each individual hospital submits data to HARI who then appends to a master file)?

34. Who records (data entry) the data?

- 35. Who stores the data? Both current and historic.
- 36. What happens to old data as new data arrives? (is it archived or overwritten)?
- 37. How and when are data archived?

### **Analysis and reporting**

- 38. What checks are used for completeness of data submission (i.e., have all the records), for completeness of data elements (i.e., missing data), and for accuracy of data elements (are they consistently reported, etc.)?
- 39. Are standardized reports produced using the data? Who receives copies of these reports? Can Qualidigm obtain copies?
- 40. What type of analyses or reports have been generated in the past using this database?
- 41. Are the data risk adjusted or stratified in the reports?
- 42. Do the data require specific software to run queries and manipulate?
- 43. Do you routinely respond to ad hoc requests? If so, who makes these requests? What is the fee structure for ad hoc requests? Is there someone on staff who does these routinely or does it have to be outsourced?
- 44. Are any process or outcome measures derived from the data?
- 45. Are there other uses of the database (other than what is has been used for to date) that you can think of?



## **APPENDIX C: HCUP Quality Indicators**

### **1. Potentially avoidable adverse hospital outcomes (16 indicators)**

#### *Inpatient mortality rates*

Hysterectomy  
Laminectomy/spinal fusion  
Cholecystectomy  
Transurethral prostatectomy  
Hip replacement  
Knee replacement  
Obstetrical complications  
Adverse effects and iatrogenic complications  
Wound infection

#### *Complication rates*

Pulmonary compromise after major surgery  
Acute myocardial infarction after major surgery  
Gastrointestinal hemorrhage or ulceration after major surgery  
Venous thrombosis or pulmonary embolism after major surgery/invasive vascular procedure  
Mechanical complications due to device, implant, or graft (excluding organ transplant)  
Urinary tract infection after major surgery  
Pneumonia after major surgery/invasive vascular procedure

### **2. Potentially inappropriate utilization of hospital procedures (9 indicators)**

Cesarean section delivery  
Successful vaginal birth after cesarean section (VBAC)  
Incidental appendectomy among elderly  
Hysterectomy  
Laminectomy and/or spinal fusion  
Transurethral prostatectomy  
Radical prostatectomy  
Laparoscopic cholecystectomy  
Coronary artery bypass graft (CABG)

### **3. Potentially avoidable hospital admissions (8 indicators)**

Low birthweight  
Very low birthweight  
Pediatric asthma  
Immunization-preventable pneumonia and influenza among the elderly

Cerebrovascular disease among non-elderly adults  
Diabetes short-term complications  
Diabetes long-term complications  
Perforated appendix

*AHCPR Pub. No. 98-P015*  
*Current as of March 1999*

## APPENDIX D: Summary Table

Database Name	Subset/ Sample or Population Based	Data Source	Data Elements	Edits/ Quality Checks	Links	Collection Timeframe	Most Recent Reporting Timeframe	Public Access	Involved Vendors
Hospital Discharge Database (HDD)	Population of discharges in Rhode Island	All Rhode Island Hospitals	Admission type & source, disposition, 7 diagnoses, 10 procedures and dates, birth weight, total charges race/ethnicity, zip code, admit & discharge dates	Performed by HCIA routinely and HEALTH on an ad hoc basis by linking to Birth & Death Records. Standard annual check with Traumatic Brain Injury Surveillance.	Death Records, Birth Records, Traumatic Brain Injury Surveillance Database	Quarterly	Fiscal Year Reports	Yes – without identifiers	HCIA
National Perinatal Center Data Base	All discharges for participating hospitals	Hospital discharge abstract data and billing system records	All data elements found on a HCFA1500 & UB-92 as well as apgar, birthweight, APR-DRG groupers	Extensive editing system including “reality checks”	American Hospital Association Database	Quarterly	Rolling basis: July 1998-June 1999	No	
Health Facilities File	Population of licensed health care facilities	Licensed facilities	License type, # of beds, type of beds, addresses, contact names & phone numbers		MDS, OASIS, OSCAR, HDD	Annual renewal process or upon charge in ownership	Annual	Yes	

Database Name	Subset/ Sample or Population Based	Data Source	Data Elements	Edits/ Quality Checks	Links	Collection Timeframe	Most Recent Reporting Timeframe	Public Access	Involved Vendors
Maternal and Child Health Data	Population	Induced abortions, fetal deaths, deaths and inpatient discharges (for patients newborn through age five)	Birthweight, gestational age, # of prenatal care visits, cause of death, pregnancy risk factors, mother's age			Database is current with vital records	1993-1997	Yes	Rhode Island Kids Count
Newborn Develop-Mental Risk Screening and Home Visiting	Population	VNA Nurse Abstract-ors at the hospital	Apgar, birthweight, risk assessment, census tract, number of prenatal visits, delivery type, information on parent's substance use & mental health	Edit report run weekly to identify errors which must be corrected by the next submission		Weekly	Data on children born on or after January 1997	Yes	
Linked Infant-Death Records	Population	Vital records (birth files, birth certificates and death certificates)	Reason for death, birth weight, census tract, hospital of birth			Annual	Calendar Year 1998	Yes	
Cardiac Services Registry	Population of patients with invasive cardiac	Hospitals	Cardiac catheterization, coronary, open heart surgery	Built-in software edit checks & some data are data entered twice	Potential to be linked to hospital discharge	Annual	Calendar Year 1997	Yes – without confidential patient identifiers	

Database Name	Subset/ Sample or Population Based	Data Source	Data Elements	Edits/ Quality Checks	Links	Collection Timeframe	Most Recent Reporting Timeframe	Public Access	Involved Vendors
	services				data				
Medicaid Management Information System (MMIS)	Population of Medicaid recipients	HCFA 1500 and UB-92 forms, hospital pre-authorization files and EDS Dental waiver and Nursing Facility claim forms.	Medicaid Enrollment date(s), health plan enrollment, inpatient, demographics, outpatient and ancillary service data	Built-in system edit checks, including eligibility, diagnoses	SSN could be used to link to external databases	Daily	Current	Yes with authorization	EDS, Birch-Davis
Hospital Utilization Management Data	Population	Medical records, discharge planning	Demographics, clinical	Built-in system edits	Internal to other hospital databases	Daily	Current	Yes with authorization	HCIA
Hospital Laboratory Data	Population	Laboratory and pathology services	Demographic, clinical, financial	Automated results checked by supervisor based on printouts. In "Caltests" there are normal and critical ranged that the system checks against, that flags the results to bring	Internal to other hospital databases	Daily	Current	Yes with authorization	Psyche

Database Name	Subset/ Sample or Population Based	Data Source	Data Elements	Edits/ Quality Checks	Links	Collection Timeframe	Most Recent Reporting Timeframe	Public Access	Involved Vendors
				them to the attention of staff checking results.					
Hospital Pharmacy Data	Population	Pharmacy orders in the hospital	Demographic, clinical, dosage, frequency of medications	Pharmacist confirms order, system checks dose-range edits, allergies checks	Internal to other hospital databases	Daily	Current	Yes with authorization	McKesson/HBOC
Mental Health/Rehabilitation Hospital	Sample	Medical records	Demographics, clinical	Some reabstraction done	No	Monthly	Quarterly	Yes with authorization	
Cancer Registry	Population with reportable cancers	12 acute care hospitals, Harvard Pilgrim Health Plan, independent laboratories and freestanding surgical centers	Patient history, including demographic, cancer treatment, zip code, census tract	Every case checked for completeness and internal consistency. Check for duplicates and missing information replaced systematically	Vital records			Yes	Rocky Mountain Cancer Data Systems

Database Name	Subset/ Sample or Population Based	Data Source	Data Elements	Edits/ Quality Checks	Links	Collection Timeframe	Most Recent Reporting Timeframe	Public Access	Involved Vendors
Traumatic Brain Injury	Population	Death certificate data, hospitals reporting to state mandated reporting system and hospital discharge database	Type of injury, race, gender, admission source, description of injury event, level of consciousness, Glasgow outcome scale, spinal cord injury level & extent	CDC designed software program checks for inconsistencies	HDD	Annual	Calendar Year 1997	Aggregate tables available on request. CDC version requests must be cleared through Disability & Health Program	
Kids Net	Subset of pediatricians' offices	Immunization registry, Early Intervention Program, WIC, laboratories	Immunizations, lead screening, hearing assessment, WIC, home visiting, early intervention, metabolic screening			Daily	Covers children born after January 1, 1997 whose pediatricians participate in the system	No – database is a reminder system for parents to get their children up-to-date on preventive service	

## **APPENDIX E: National Perinatal Information Center: ORYX Measures**

### **I. ADULT MEDICAL (All measures exclude OB, Surgery, Psychiatric, Rehabilitation and Patients with AIDS/HIV\*)**

- 1750 Adult intrahospital ICU mortality rate
- 1753 Adult post-trauma wound infection rate
- 1770 Adult diabetes: long term complications
- 1771 Adult diabetes: short term complications

### **II. ADULT SURGICAL (Excludes obstetrics and patients with AIDS/HIV\*)**

#### **1. General**

- 1751 Adult postsurgery wound infection rate
- 1752 Adult postsurgical complication rate
- 1808 Adult readmission post surgery within 30 days
- 1809 Adult postoperative mortality rate

#### **2. Complications of Major Surgery**

- 1748 Adult rate of surgical cases with thrombosis or embolism
- 1755 Adult rate of urinary tract infection (UTI) after major surgery
- 1757 Adult rate of GI hemorrhage or ulceration after surgery
- 1760 Rate of major surgical cases with AMI

#### **3. Adult Surgery - Specific**

- 1759 Rate of laparoscopic cholecystectomy
- 1761 Rate of coronary artery bypass graft (CABG)
- 1762 Rate of laminectomy
- 1763 Rate of prostatectomy
- 1764 Hysterectomy rate

#### **4. Complications Due to Mechanical Devices, Implants, Grafts (Excluding Organ Transplant)**

- 1754 Adult rate of mechanical device complications

### **III. PERINATAL**

#### **1. Obstetrics**

- 5268 C-Section Rate
- 5265 Birth after C-Section (VBAC) Rate
- 1746 Cesarean section for failure to progress
- 1765 Forceps delivery rate (low and medium combined)
- 1773 Repeat cesarean rate
- 1774 Obstetrical complications rate
- 1775 Perineal laceration rate
- 1776 Anesthesia complication rate
- 1777 Wound infection rate
- 1778 Eclampsia rate
- 1779 Obstetrical readmission rate
- 1780 Maternal intrahospital mortality rate
- 1791 Primary cesarean section rate

#### **2. Neonatology**



- 5272 Inborn low birthweight rate (>500 and <2500 grams)
- 1766 Intrahospital mortality for inborn singletons
- 1769 Percent of newborns with birthweight between 500-1500 grams
- 1781 Readmission rate
- 1782 Birth trauma rate
- 1783 BPD rate
- 1785 Meconium aspiration syndrome rate (inborn)
- 1786 Ratio actual versus expected mortality
- 1787 Outborn mortality rate
- 1788 Crude intrahospital mortality rate
- 1789 Intrahospital mortality rate for inborn singletons (500-1500 grams)

**IV. PEDIATRIC MEDICAL (Excludes OB, Surgery, Psychiatric, Rehabilitation and Patients with AIDS/HIV\*)**

- 1767 Pediatric PICU mortality rate
- 1772 Pediatric pneumonia rate
- 1794 Pediatric post-trauma wound infection rate
- 1792 Pediatric asthma rate
- 1810 Pediatric inpatient mortality rate

**V. PEDIATRIC SURGICAL (Excludes patients with AIDS/HIV\*)**

***1. General***

- 1795 Pediatric postsurgery wound infection rate
- 1797 Pediatric postsurgical complication rate
- 1811 Pediatric postoperative mortality rate
- 1812 Pediatric readmission postsurgery within 30 days

***2. Complications of Major Surgery***

- 1798 Pediatric postsurgical pulmonary compromise
- 1799 Pediatric rate of GI hemorrhage or ulceration postsurgery

***3. Pediatric Surgery -- Specific***

- 1790 Pediatric ruptured appendix rate

Due to variation in cases by location, rates can be affected by high case loads of these patients.

**APPENDIX F: Maternal and Child Health Performance Measures**

## **Federal Performance Measures**

1. The percent of State SSI beneficiaries less than 16 years old receiving rehabilitative services from the State Children with Special Health Care needs (CSHCN) Program.
2. The degree to which the State Children with Special Health Care Needs (CSHCN) Program provides or pays for specialty and subspecialty services, including care coordination, not otherwise accessible or affordable to its clients.
3. The percent of Children with Special Health Care Needs (CSHCN) in the State who have a "medical/health home."
4. Percent of newborns in the State with at least one screening for each of PKU, hypothyroidism, galactosemia, hemoglobinopathies (e.g., the sickle cell diseases) (combined).
5. Percent of children through age 2 who have completed immunizations for Measles, Mumps, Rubella, Polio, Diphtheria, Tetanus, Perussis, Haemophilus Influenza, Hepatitis B.
6. The birth rate (per 1,000) for teenagers aged 15 through 17 years.
7. Percent of third grade children who have received protective sealants on at least one permanent molar tooth.
8. The rate of deaths to children aged 1 - 14 caused by motor vehicle crashes per 100,000 children.
9. Percentage of mothers who breastfeed their infants at hospital discharge.
10. Percentage of newborns who have been screened for hearing impairment before hospital discharge.
11. Percent of Children with Special Health Care Needs (CSHCN) in the State CSHCN program with a source of insurance for primary and specialty care.
12. Percent of children without health insurance.
13. Percent of potentially Medicaid eligible children who have received a service paid by the Medicaid Program.
14. The degree to which the State assures family participation in program and policy activities in the State CSHCN program.
15. The rate (per 100,000) of suicide deaths among youths aged 15-19.

17. Percent of very low birth weight infants delivered at facilities for high-risk deliveries and neonates.
18. Percent of infants born to pregnant women receiving prenatal care beginning in the first trimester.

### **State Performance Measures**

1. Percent of children  $\geq$  18 months in childcare who are up to date on immunizations.
2. Percent of students in schools with school-based health centers who receive school-based health services.
3. Proportion of parents presenting at the Child Development Center for conditions that have genetic precursors who report being offered genetic services.
4. Percent of women who receive prenatal care in the first trimester by race/ethnicity and socioeconomic status.
5. Percent of children tested with lead levels  $\geq$  to 10 ug/dL by race/ethnicity and socioeconomic status.
6. Percent of 9<sup>th</sup> graders who are expected to graduate (based on the existing dropout incidence among 9<sup>th</sup>, 10<sup>th</sup>, 11<sup>th</sup>, and 12<sup>th</sup> grade students).
7. Number of children with IFSPs for whom an IEP is developed.
8. Number of children in WIC aged  $< 1$  with stature for weights that are either  $\leq 25^{\text{th}}$  percentile or  $\geq 90^{\text{th}}$  percentile; and the number of children in WIC aged 1-5 with stature for weights that are either  $\leq 10^{\text{th}}$  percentile or  $\geq 95^{\text{th}}$  percentile.
9. Number at risk (risk positive) newborns who receive a home visit during the early newborn period.
10. Number completed parent surveys.<sup>6</sup>

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<sup>6</sup> Nursing Facilities, Staffing, Residents and Facility Deficiencies, 1991 through 1997, 1997, Harrington, Charlene et. al, p.8.

## APPENDIX G: Pharmacy Systems Survey

1) Name of Hospital:

\_\_\_\_\_

2) Name of person completing survey: \_\_\_\_\_ Telephone # \_\_\_\_\_ e-mail address: \_\_\_\_\_

3) Title of person completing survey: \_\_\_\_\_

4) Does your hospital capture any pharmacy data electronically?

☐ YES

↳ If YES, Please skip to question # 5 on the next page

☐ NO

↳ If NO,

4a) do you capture this information in a systematic format such as a pharmacy log or mechanism other than the medical record?

☐ Y

↳ If Y, please briefly describe:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

☐ NO

4b) If your hospital does not capture any pharmacy data electronically, do you plan to implement an electronic system in the near future?

☐ Y

↳ If Y, is there an approximate date you plan to begin implementation? Please indicate date: \_\_\_\_\_

☐ NO

**STOP HERE**

*If you do not collect any pharmacy data electronically, do not complete the remainder of the survey.  
Thank you for your participation in this very important project. Please return the survey in the enclosed return envelope.*

5) Please indicate the patient populations which are included in the electronic pharmacy database:

5a) Inpatients: Do you capture pharmacy data for *all* inpatients

☐ Y

☐ N

↳ If N, what *inpatients are not included?* (e.g., specific unit, payer, drug class, etc.) \_\_\_\_\_

\_\_\_\_\_

5b) Emergency Room patients: Do you capture pharmacy data for *all* emergency room patients who are *admitted?*

☐ Y

☐ N

5c) Other Services: Do you capture pharmacy data for any services other than inpatient? (e.g., specific unit, outpatient, payer, etc)

☐ Y

☐ N

\_\_\_\_\_

6) Does the pharmacy contract with a vendor for a proprietary pharmacy management information system?

☐ YES

↳ If YES, have you been using this vendor's software since January 1, 1999? ☐ Y ☐ N

Name of vendor:

\_\_\_\_\_

Name of software/product:

\_\_\_\_\_

☐ NO

↳ If NO, what software product do you use to maintain the pharmacy database? \_\_\_\_\_

7) Are patient demographic information fields (patient name, address, gender, social security #, date of birth, and hospital medical record number) imported electronically from another database?

☐ YES

↳ If YES, please name the database from which they are imported (e.g., admissions, billing, accounting, etc): \_\_\_\_\_

☐ NO

↳ If NO, please describe if, or how, these elements are captured.

\_\_\_\_\_

**Questions 8 – 12:** Please complete the data element grid below to answer questions 8 through 12.

	Question # 8	Question #9	Question #10	Question #11	Question #12
<b>Data Element</b>	Is this specific data element captured in your electronic pharmacy database?	Has this data element been captured in the electronic pharmacy database consistently since January 1, 1999?	Is this data element exported from the electronic pharmacy database to another database? If yes, please provide the name of the database (e.g., billing, discharge, accounting, etc.)	If the data element is <u>not</u> exported, does it remain in the electronic pharmacy database?	Can you or your staff easily develop an aggregate report from the electronic pharmacy database, which includes this data element?
Patient's attending physician ID # (e.g., Medicare provider #, UPIN, PIN, TIN, state licensee #, other identifier) Please provide type of #:_____	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No name: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> not applicable	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> don't know
Patient's known allergies	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No name: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> not applicable	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> don't know
Patient's admission diagnosis	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No name: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> not applicable	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> don't know
Patient's discharge diagnosis	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No name: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> not applicable	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> don't know
ID # of physician who ordered drug	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No name: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> not applicable	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> don't know

	Question # 8	Question #9	Question #10	Question #11	Question #12
<b>Data Element</b>	Is this specific data element captured in your electronic pharmacy database?	Has this data element been captured in the electronic pharmacy database consistently since January 1, 1999?	Is this data element exported from the electronic pharmacy database to another database? If yes, please provide the name of the database (e.g., billing, discharge, accounting, etc.)	If the data element is <u>not</u> exported, does it remain in the electronic pharmacy database?	Can you or your staff easily develop an aggregate report from the electronic pharmacy database, which includes this data element?
NDC # of drug (national drug code)	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No name: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> not applicable	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> don't know
Dosage of drug	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> No <input type="checkbox"/> Yes name: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> not applicable	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> don't know
Frequency of drug administration	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No name: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> not applicable	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> don't know
Time drug was ordered by physician	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No name: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> not applicable	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> don't know
Time drug administered	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No name: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> not applicable	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> don't know
Dose missed or not administered	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No name: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> not applicable	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> don't know
Aspirin taken within 24 hours prior to admission	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No name: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> not applicable	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> don't know

	Question # 8	Question #9	Question #10	Question #11	Question #12
<b>Data Element</b>	Is this specific data element captured in your electronic pharmacy database?	Has this data element been captured in the electronic pharmacy database consistently since January 1, 1999?	Is this data element exported from the electronic pharmacy database to another database? If yes, please provide the name of the database (e.g., billing, discharge, accounting, etc.)	If the data element is <u>not</u> exported, does it remain in the electronic pharmacy database?	Can you or your staff easily develop an aggregate report from the electronic pharmacy database, which includes this data element?
Beta blocker taken within 24 hours prior to admission	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No name: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> not applicable	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> don't know
Medications prescribed at discharge	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No name: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> not applicable	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> don't know
"Charge backs" /account reconciliation	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No name: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> not applicable	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> don't know
Payer/health plan name	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No name: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> not applicable	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> don't know

13) Is the Medication Administration Record for each patient captured in the electronic pharmacy database?

☐ YES

☐ NO

☞ If NO, please describe where this information is available. \_\_\_\_\_

\_\_\_\_\_

*Thank you for your participation in this very important project. Please return the survey in the enclosed return envelope.*



## APPENDIX H: Laboratory Systems Survey

1) Name of Hospital \_\_\_\_\_

2) Name of person completing survey: \_\_\_\_\_ Telephone # \_\_\_\_\_ e-mail address: \_\_\_\_\_

3) Title of person completing survey: \_\_\_\_\_

4) Does your hospital capture any laboratory data electronically? (e.g., data relating to laboratory orders, lab results, or specimen samples)

☐ YES

↳ If YES, ***Please skip to question # 5 on the next page***

☐ NO

↳ If NO,

4a) do you capture this information in a systematic format such as a laboratory log or mechanism other than the medical record?

☐ Y

↳ If Y, please briefly describe:

---

---

☐ N

4b) If your hospital does not capture any laboratory data electronically, do you plan to implement an electronic system in the near future?

☐ Y

↳ If Y, is there an approximate date by which you plan to begin implementation? Please indicate date: \_\_\_\_\_

☐ N

### STOP HERE

***If you do not collect any laboratory data electronically, do not complete the remainder of the survey.  
Thank you for your participation in this very important project. Please return the survey in the enclosed return envelope.***

5) Please indicate the patient populations included in the electronic laboratory database:

5a) all inpatients:

☐ Y

☐ N

↳ If N, what inpatients are not included? (e.g., specific unit, payer, type of exam/test, etc.) \_\_\_\_\_

5b) emergency room: Do you capture laboratory data for all emergency room patients who are admitted?

☐ Y

☐ N

5c) other services: Do you capture laboratory data for any services other than inpatient? (e.g., specific unit, outpatient, payer, etc)

☐ Y

☐ N

6) Does the laboratory contract with a vendor for a proprietary laboratory management information system?

☐ YES

↳ If YES, have you been using this vendor's software since January 1, 1999?

☐ Y

☐ N

Name of vendor: \_\_\_\_\_

Name of software/product: \_\_\_\_\_

☐ NO

↳ If NO, what software product do you use to maintain the laboratory database? \_\_\_\_\_

7) Are patient demographic information fields (patient name, address, gender, social security #, date of birth, and hospital medical record number) imported electronically from another database?

☐ YES

↳ If YES, please name the database from which they are imported (e.g., admissions, billing, accounting, etc): \_\_\_\_\_

☐ NO

↳ If NO, please describe if, or how, these elements are captured. \_\_\_\_\_

**Questions 8 – 12:** Please complete the data element grid below to answer questions 8 through 12.

	Question # 8	Question #9	Question #10	Question #11	Question #12
	Is this specific data element captured in your electronic laboratory database?	Has this data element been captured in the electronic laboratory database consistently since January 1, 1999?	Is this data element exported from the electronic laboratory database to another database? If yes, please provide the name of the database (e.g., billing, discharge, accounting, etc.)	If the data element is <u>not</u> exported, does it remain in the electronic laboratory database?	Can you or your staff easily develop an aggregate report from the electronic laboratory database, which includes this data element?
Data Element					
Patient's attending physician ID # (e.g., Medicare provider #, UPIN, PIN, TIN, state licensee #, other identifier) Please provide type of #: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No name: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> not applicable	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> don't know
Patient's known allergies	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No name: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> not applicable	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> don't know
Patient's admission diagnosis	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No name: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> not applicable	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> don't know
Patient's discharge diagnosis	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No name: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> not applicable	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> don't know
ID # of physician who ordered test/exam	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No name: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> not applicable	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> don't know

	Question # 8	Question #9	Question #10	Question #11	Question #12
	Is this specific data element captured in your electronic laboratory database?	Has this data element been captured in the electronic laboratory database consistently since January 1, 1999?	Is this data element exported from the electronic laboratory database to another database? If yes, please provide the name of the database (e.g., billing, discharge, accounting, etc.)	If the data element is <i>not</i> exported, does it remain in the electronic laboratory database?	Can you or your staff easily develop an aggregate report from the electronic laboratory database, which includes this data element?
<b>Data Element</b>					
Code # of test/exam (e.g., revenue code, CTP-4, HCPC, or “home-grown”) Please provide type of #: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No name: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> not applicable	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> don’t know
Name or code # of the panel/profile which includes the specific test/exam	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No name: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> not applicable	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> don’t know
Time test/exam was ordered by physician	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No name: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> not applicable	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> don’t know
Frequency of test/exam	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No name: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> not applicable	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> don’t know
Time sample was obtained	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No name: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> not applicable	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> don’t know
Time test/exam was conducted (e.g., the time the test was “run”)	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No name: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> not applicable	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> don’t know
Test Results	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No name: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> not applicable	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> don’t know

	Question # 8	Question #9	Question #10	Question #11	Question #12
<b>Data Element</b>	Is this specific data element captured in your electronic laboratory database?	Has this data element been captured in the electronic laboratory database consistently since January 1, 1999?	Is this data element exported from the electronic laboratory database to another database? If yes, please provide the name of the database (e.g., billing, discharge, accounting, etc.)	If the data element is <u>not</u> exported, does it remain in the electronic laboratory database?	Can you or your staff easily develop an aggregate report from the electronic laboratory database, which includes this data element?
A record that the sample was unable to be obtained	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No name: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> not applicable	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> don't know
Unable to run test/exam (e.g., insufficient sample quantity, contaminated sample, hemolyzed sample, etc)	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No name: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> not applicable	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> don't know
"Charge backs" /account reconciliation	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No name: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> not applicable	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> don't know
Payer/health plan name	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No name: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> not applicable	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> don't know

*Thank you for your participation in this very important project. Please return the survey in the enclosed return envelope.*

## **APPENDIX I: Pharmacy and Laboratory Information Systems Survey Results**

### **Methods**

As an extension of the Internal Scan Report, Qualidigm, in collaboration with HEALTH and HARI, developed a survey instrument to collect hospital-specific information from Pharmacy and Laboratory Directors. The objective in conducting the survey was to determine the extent to which hospitals in Rhode Island capture pharmacy and laboratory inpatient data electronically.

### **Results: Pharmacy**

The results of the pharmacy survey indicate that all but one hospital collect pharmacy data electronically. However, the comprehensiveness of those databases in terms of patient populations included and specific data elements captured show that further work is needed in order to utilize such systems for developing administratively based quality indicators. The detailed responses to the survey are summarized below.

#### **How many hospitals capture their pharmacy data electronically?**

- ❑ 14 out of 15 hospitals capture some pharmacy data electronically
- ❑ The one hospital that does not currently capture pharmacy data electronically planned to implement an electronic system in April 2000. Their current process is to document data by hand on a patient profile and which is stored in the pharmacy.

Note: The remainder of the results of the pharmacy survey pertain solely to the 14 hospitals with electronic systems.

#### **Patient populations included in the electronic pharmacy database?**

- ❑ 13 out of 14 hospitals capture all inpatients in their electronic pharmacy database
- ❑ For the one hospital that does not capture all inpatients, neonates, ambulatory surgery and operating room inpatient are excluded from the pharmacy database.

#### **Are emergency room patients who are admitted included in the electronic pharmacy database?**

- ❑ 10 out of 14 hospitals capture all ER patients admitted to their hospital in their electronic pharmacy database

#### **Are pharmacy data for services other than inpatient captured in the electronic pharmacy database?**

- ❑ 12 out of 14 hospitals indicated that other services are captured in the electronic pharmacy database, these include: Outpatient, Ambulatory Surgery, Ambulatory Medicine (i.e. day chemotherapy), Emergency, Oncology, Observation, Partial Hospital, TB clinic

**Does the pharmacy contract with a vendor for a proprietary pharmacy management information system?**

- ❑ 11 out of 14 hospitals do contract with a vendor for a proprietary pharmacy MIS and they have all been using the vendor since January 1, 1999
- ❑ There is a modicum of standardization around vendors. In fact, 6 different pharmacy MIS vendors are used by the 11 different hospitals with vendor contracts as follows:
  - ❑ 3 hospitals use the same vendor and the same product
  - ❑ 2 hospitals use the same vendor and 2 different products
  - ❑ 2 hospitals use the same vendor and 2 different products
  - ❑ 3 hospitals use 3 different vendors

The remaining 3 hospitals use 3 different off-the-shelf software products

**Are patient demographic information fields imported electronically from another database?**

- ❑ 12 out of 14 hospitals indicated that demographics are imported from another database
- ❑ The 2 hospitals that do capture data electronically, but do not import demographics from another database, indicated that demographics are captured in the following ways:
  - ❑ Entered by Pharmacy staff
  - ❑ Input from original physician order imprinted with addressograph information as well as other handwritten information.

### Pharmacy Survey Results on Specific Data Elements

	1	2	3	4	5
Data Element	Captured in electronic pharmacy database?	Captured in electronic pharmacy database consistently since January 1, 1999?	Exported from pharmacy database to another database?	If <u>not</u> exported, does it remain in the electronic pharmacy database?	Report from the database including this data element?
Patient's attending physician ID	10/14 Yes	10/10 Yes	1/10 Yes	9/9 Yes	5/10 Yes 1/10 No 4/10 D/K
Patient's known allergies	14/14 Yes	14/14 Yes	4/14 Yes	9/10 Yes 1/10 No	11/14 Yes 2/14 No 1/14 D/K
Patient's admission diagnosis	13/14 Yes	13/13 Yes	3/13 Yes	9/10 Yes 1/10 No	6/13 Yes 4/13 No 3/13 D/K
Patient's discharge diagnosis	3/14 Yes	3/3 Yes	3/3 Yes	Not applicable	1/3 Yes 2/3 D/K
ID # of physician who ordered drug	3/14 Yes	3/3 Yes	1/3 Yes	1/2 Yes 1/2 No	3/3 Yes
NDC # of drug (national drug code)	10/14 Yes	8/10 Yes	1/10 Yes	1/9 Yes 6/9 No 2/9 D/K	5/10 Yes 5/10 D/K
Dosage of drug	14/14 Yes	14/14 Yes	6/14 Yes	8/8 Yes	14/14 Yes
Frequency of drug administration	14/14 Yes	14/14 Yes	4/14 Yes	9/10 Yes 1/10 N/A	8/14 Yes 4/14 No 2/14 D/K
Time drug ordered by MD	2/14 Yes	2/2 Yes	1/2 Yes	1/2 No	1/2 Yes 1/2 No
Time drug administered	4/14 Yes	4/4 Yes	0/4 Yes	2/4 No 2/4 N/A	0/4 Yes

N/A – Not applicable

D/K – Don't Know



### Pharmacy Survey Results on Specific Data Elements

	1	2	3	4	5
Data Element	Captured in electronic pharmacy database?	Captured in electronic pharmacy database consistently since January 1, 1999?	Exported from pharmacy database to another database?	If <i>not</i> exported, does it remain in the electronic pharmacy database?	Report from the database including this data element?
Dose missed or not administered	2/14 Yes	2/2 Yes	2/2 Yes	Not applicable	0/2 Yes
Aspirin 24 hours pre admission	0/14 Yes	Not applicable	Not applicable	Not applicable	Not applicable
Beta blocker 24 hours pre admission	0/14 Yes	Not applicable	Not applicable	Not applicable	Not applicable
Medications prescribed at discharge	0/14 Yes	Not applicable	Not applicable	Not applicable	Not applicable
"Charge backs"/account reconciliation	6/14 Yes	6/6 Yes	5/6 Yes	1/1 Yes	3/6 Yes 1/6 No 2/6 D/K
Payer/health plan name	3/14 Yes	3/3 Yes	2/3 Yes	1/1 Yes	1/3 Yes 1/3 No 1/3 D/K

N/A – Not applicable

D/K – Don't Know

**Is the Medication Administration Record for each patient captured in the electronic pharmacy database?**

- ❑ 4 out of 14 hospitals do capture the MAR in their electronic database
  - ❑ For the 10 hospitals that do not capture the MAR in the electronic database, it is available in a variety of systems, including:
    - ❑ Medical record
    - ❑ Nursing Order Entry
    - ❑ A manual system maintained by the nursing staff

**Results: Laboratory Survey**

The results of the laboratory survey indicate that all hospitals collect laboratory data electronically. However, the comprehensiveness of those databases in terms of patient populations included and specific data elements captured show that further work is needed in order to utilize such systems for developing administratively based quality indicators. The detailed responses to the survey are summarized below.

**How many hospitals capture their lab data electronically?**

- ❑ 15 out of 15 hospitals capture lab data electronically

**Patient populations included in the electronic lab database?**

- ❑ 14 out of 15 hospitals capture all inpatients in their electronic lab database
- ❑ For the one hospital that does not capture all inpatients, all clinical tests, Micro, Hematology and Blood Bank services are excluded from the lab database.

**Are emergency room patients who are admitted included in the electronic lab database?**

- ❑ 13 out of 15 hospitals capture all ER patients admitted to their hospital in their electronic lab database

**Are lab data for services other than inpatient captured in the electronic lab database?**

- ❑ 14 out of 15 hospitals indicated that other services are captured in the electronic lab database. These include: outpatient and home care services.

**Does the lab contract with a vendor for a proprietary lab management information system?**

- ❑ 15 out of 15 hospitals do contract with a vendor for a proprietary lab MIS and 10/15 of them have all been using the vendor since January 1, 1999
- ❑ In total, 9 different lab MIS vendors are used by the 14 hospitals with vendor contracts, as follows:
  - ❑ 5 hospitals use the same vendor, 2 of those hospitals use the same vendor's product while another 3 use 3 different products from that same vendor
  - ❑ 2 hospitals use the same vendor and the same product
  - ❑ 2 hospitals use the same vendor and different versions of the same vendor's product
  - ❑ 6 hospitals use 6 different vendors

**Are patient demographic information fields imported electronically from another database?**

- ❑ 14 out of 15 hospitals indicated that demographics are imported from another database
- ❑ The 1 hospital that captures data electronically, but does not import demographics from another database, gets it via manual data entry



### Laboratory Survey Results on Specific Data Elements

	1	2	3	4	5
Data Element	Captured in electronic lab database?	Captured in electronic lab database consistently since January 1, 1999?	Exported from lab database to another database?	If <u>not</u> exported, does it remain in the electronic lab database?	Report from the database including this data element?
Patient's attending physician ID	9/15 Yes	8/9 Yes	3/9 Yes	4/6 Yes 1/6 N/A 1/6 No	6/9 Yes 2/9 No 1/9 D/K
Patient's known allergies	0/14 Yes	Not applicable	Not applicable	Not applicable	Not applicable
Patient's admission diagnosis	8/15 Yes	7/8 Yes	2/8 Yes	2/6 Yes 3/6 No 1/6 N/A	4/8 Yes 3/8 No 1/8 D/K
Patient's discharge diagnosis	1/15 Yes	1/1 Yes	0/1 Yes	0/1 Yes	0/1 Yes
ID # of physician who ordered test/exam	12/15 Yes	9/12 Yes	2/12 Yes	9/10 Yes 1/10 N/A	9/12 Yes 2/12 No 1/12 D/K
Code of test/exam	13/15 Yes	10/13 Yes	6/13 Yes	7/7 Yes	8/13 Yes 3/13 No 2/13 D/K
Name or code # of panel/profile	14/15 Yes	11/14 Yes	7/14 Yes	7/7 Yes	12/14 Yes 2/14 No
Time sample ordered	8/15 Yes	0/8 Yes	4/8 Yes	4/4 Yes	6/8 Yes 2/8 No
Frequency of test/exam	7/15 Yes	6/7 Yes	2/7 Yes	2/5 Yes 2/5 No 1/5 N/A	2/7 Yes 4/7 No 1/7 D/K
Time sample obtained	15/15 Yes	12/15 Yes	9/15 Yes	5/6 Yes 1/6 N/A	12/15 Yes 3/15 No

N/A – Not applicable

D/K – Don't Know

**Laboratory Survey Results on Specific Data Elements**

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Data Element</b>	Captured in electronic lab database?	Captured in electronic lab database consistently since January 1, 1999?	Exported from lab database to another database?	If <i>not</i> exported, does it remain in the electronic lab database?	Report from the database including this data element?
Time test conducted	15/15 Yes	12/15 Yes	7/15 Yes	6/8 Yes 2/8 No	9/15 Yes 4/15 No 2/15 D/K
Test results	15/15 Yes	12/15 Yes	9/15 Yes	6/6 Yes	13/15 Yes 2/15 No
Record that sample unable to be obtained	14/15 Yes	11/14 Yes	8/14 Yes	7/6 Yes 1/6 No	9/14 Yes 4/14 No 1/14 D/K
Unable to run test/exam	15/15 Yes	12/15 Yes	9/15 Yes	6/6 Yes	10/15 Yes 4/15 No 1/15 D/K
"Charge backs"/account reconciliation	8/15 Yes	6/8 Yes	5/8 Yes	2/8 Yes 1/8 No	4/8 Yes 2/8 No 2/8 D/K
Payer/health plan name	2/15 Yes	2/2 Yes	1/2 Yes	1/1 Yes	1/2 No 1/2 D/K

N/A – Not applicable

D/K – Don't Know

## APPENDIX J: OSCAR Reports

### ***LISTING OF OSCAR STANDARD REPORTS***

The following is a listing of the different types of standard reports available from the OSCAR System. The report categories are grouped by OSCAR System, OSCAR data entry subsystems, and CLIA System. Standard reports in the OSCAR System can be grouped into the following six categories:

- ◆ OSCAR System: Reports 1 to 26 (No reports exist for numbers 12, 13, and 24)
- ◆ ODIE Subsystem: Reports 30 to 33
- ◆ COMP Subsystem: Reports 40 to 43
- ◆ FMS Subsystem: Reports 60 to 68 (No reports exist for numbers 65 to 67)
- ◆ CLIA System: Reports 70 to 96 (No reports exist for numbers 76 to 79 and 88 to 90)
- ◆ PT function (function of ODIE Subsystem): Reports 150 to 158

**NOTE:      REPORTS ARE NOT NUMBERED CONSECUTIVELY. THE GAPS IN NUMBERING INDICATED WHERE REPORTS HAVE EITHER BEEN DELETED OR SPACE HAS BEEN RESERVED FOR FUTURE REPORTS.**

Depending on each individual user's access privileges, some screens and options may or may not be available for use. For instance, users who possess data entry level access will not have access to screens or options that have been reserved for state or central office users.

A listing and description of each standard report are shown below and on the following pages. Page numbers for report instructions are also listed.

<b><u>See Pages</u></b>	<b><u>Report Number</u></b>	<b><u>Report Name/Description</u></b>
<b>6.3 – 6.6</b>	<b>1</b>	<b>CASES FOR REGIONAL OFFICE ALERT</b> This report identifies facilities whose recertifications were not processed in a timely fashion into OSCAR.
<b>6.7</b>	<b>2</b>	<b>FACILITIES SCHEDULED FOR SURVEY</b> This report displays those facilities whose agreement will expire or whose annual survey cycle anniversary will occur in 150 days.
<b>6.8</b>	<b>3</b>	<b>FACILITY HISTORY PROFILE</b> This report contains provider identification data and all Health and LSC (Life Safety Code) deficiencies from the last four surveys for specific providers or groups of providers.
<b>6.9</b>	<b>4</b>	<b>FACILITY FULL PROFILE</b> This report provides a comprehensive summary of the current survey for a single facility or number of facilities. The summary includes characteristics, resident census, certification, and deficiency data.

**OSCAR REPORTS (Cont.)**

<b><u>See Pages</u></b>	<b><u>Report Number</u></b>	<b><u>Report Name/Description</u></b>
<b>6.10</b>	<b>5</b>	<b>EXPANDED NAME AND ADDRESS LISTING</b> This report lists provider number, name, address, state's region code, county (county code for Long Term Care), and intermediary for selected providers.
<b>6.11</b>	<b>6</b>	<b>NAME AND ADDRESS LISTING</b> This report is a single line display of the provider number, name, address, phone number, and county code for selected providers.
<b>6.12</b>	<b>7</b>	<b>POS SELECT DATA LISTING</b> This report lists limited facility characteristics: name, address, and effective date for selected providers.
<b>6.13 – 6.15</b>	<b>8</b>	<b>CERTIFICATION WORK PROCESSING TIME</b> This report lists aggregate processing times for State Agency (SA), Regional Office (RO), and the nation for all facilities entered or surveyed during a time period selected by the user.
<b>6.16</b>	<b>9</b>	<b>AVERAGE CERTIFICATION WORK PROCESSING TIMES</b> This report compares the average processing time by certification processing step and type of certification action (initial versus other) for the state, region, and nation for a given quarter or cumulative quarters for the current fiscal or calendar year by provider category.
<b>6.17 – 6.18</b>	<b>9R</b>	<b>RECAP OF CERTIFICATION FOR WORK PROCESSING TIMES</b> This report compares the aggregate average processing time by certification processing step and type of certification action (initial versus other) for the state, region, and nation for a given quarter.
<b>6.19</b>	<b>10</b>	<b>FACILITY COUNTS AND PROVIDER NUMBERS</b> This report lists the number of participating and terminated facilities in each SA, RO, and the nation.
<b>6.20</b>	<b>11</b>	<b>FACILITY ACTIVITY</b> This report lists, by provider type, totals at the start and end of the period being reported, and the number of involuntary terminations, voluntary terminations, and initial certifications.



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**OSCAR REPORTS (Cont.)**

<b><u>See Pages</u></b>	<b><u>Report Number</u></b>	<b><u>Report Name/Description</u></b>
6.21	14	<b>TERMINATION DATA</b> This report presents the number of terminations for a selected time period by reason and provider type for RO, SA, and the nation.
6.22	14S	<b>TERMINATION DATA FOR SPECIFIC CATEGORIES</b> This report presents the number of terminations for a selected time period by reason for a specific provider type for RO, SA, and the nation.
6.23	15	<b>SURVEY ACTIVITY</b> This report lists the surveys by provider type for a specified time period.
6.24	16	<b>FACILITIES FLAGGED FOR RO REVIEW</b> This report provides the number of facility certification kits that were selected for review by the RO base on either deficiencies cited or random selection.
6.25	17	<b>FACILITIES WITH SELECTED REQUIREMENTS OUT OF COMPLIANCE</b> This report lists provider number, name, address, survey date, approval date, and deficiency data (tag number, literal descriptor, correction date, and status) for facilities with a specified requirement or class of requirements (e.g. conditions, regional office flag requirements, etc.) out of compliance on the last survey.
6.26	18	<b>COMPARISON OF DEFICIENCY PATTERNS IN TAG # SEQUENCE</b> This report compares aggregate citation rates for each state, each region and the nation for the current survey in the deficiency tag number order.
6.27	18S	<b>COMPARISON OF DEFICIENCY PATTERNS BY STATE'S REGION</b> This report compares aggregate citation rates for each state, each state's region, each region, and the nation for the current survey.
6.28	19	<b>COMPARISON OF SIGNIFICANT DEFICIENCY PATTERNS IN COUNT SEQUENCE</b> This report displays only those requirements where the state is more than one standard deviation above or below the national or regional average.

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**OSCAR REPORTS (Cont.)**

<b><u>See Pages</u></b>	<b><u>Report Number</u></b>	<b><u>Report Name/Description</u></b>
6.29	20	<b>COMPARISON OF DEFICIENCY PATTERNS IN FREQUENCY OF OCCURENCE</b> This report compares aggregate deficiency citation rates for each state, region, and the nation for the current survey for selected level of deficiency in frequency of occurrence order.
6.30	21	<b>PPS EXCLUSIONS</b> This report lists all Prospective Payment System (PPS) excluded units or hospitals in a given area.
6.31 – 6.33	22	<b>ICF/MR CLIENT CHARACTERISTICS</b> This report produces a listing of client characteristics for the intermediate care facilities for the mentally retarded.
6.34 – 6.37	23	<b>SNF/NF RESIDENT CHARACTERISTICS</b> This report lists provider number, survey date, certified beds, total beds, and totals for each resident characteristic field for each facility surveyed during the report period for selected SNF and NF providers.
6.38	25	<b>SURVEY TEAM WORKLOAD DATA</b> This report produces a summary of hours for all surveys entered for providers and suppliers for the selected time period.
6.39	26	<b>INCOMPLETE 670 RECORDS</b> This report lists all 670 records in the system that are not completed.
7.2	30	<b>ODIE FACILITY PROFILE</b> This report shows the disposition of the certification kits entered the previous day.
7.3	31	<b>ODIE PENDING RECORDS</b> This report lists all pending provider records or selected records based on the date the records became pending.
7.4	32	<b>ODIE SURVEYS FORWARDED/RETAINED</b> This report provides a list of cases that need to be forwarded to the RO and/or a list of cases that need to be retained in the state agency.

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**OSCAR REPORTS (Cont.)**

<b><u>See Pages</u></b>	<b><u>Report Number</u></b>	<b><u>Report Name/Description</u></b>
7.5	33	<b>ODIE WORK RECORDS</b> This report identifies those providers that were not completed during the ADD process, (i.e., all data entry screens were not entered) and the number of days since the initial entry.
8.2	40	<b>COMPLAINT FACILITY HISTORY PROFILE</b> This report provides a summary complaint survey history for a single provider or multiple providers.
8.3	41	<b>COMPLAINT SUMMARY FILE TABULATION</b> This report represents the total number of complaints added to the file by provider type for the nation, region, or state for a specified time period.
8.4	42	<b>COMPLAINT FILE ABSTRACT LISTING</b> This report is a summary of all complaints in the file. This report includes provider identification data, complaint survey date, allegation findings, and actions taken.
8.5	43	<b>COMPLAINT FACILITY WITH SELECTED REQUIREMENTS OUT OF COMPLIANCE</b> This report lists provider number, COMPLAINT survey date, final sign-off date, and deficiency data (tag number, literal descriptor, correction date, and status) for facilities with a specified requirement or class of requirements (e.g., conditions, regional office flag requirements, etc.) out of compliance on the selected survey by conditions, standards, elements, or all deficiencies.
9.2	60	<b>FMS SURVEY PROFILE</b> This report provides a comprehensive summary of the findings from a selected Federal survey of a specific provider or category of provider.
9.3	61	<b>FMS SURVEY PROFILE FOR SAEP REVIEW</b> This report provides a comprehensive summary of the findings from a Federal survey of a particular provider or category of provider for purposes of the State Agency Evaluation Program (SAEP).
9.4	62	<b>FMS NAME AND ADDRESS LISTING</b> This report lists all facilities with Federal surveys entered into the FMS Subsystem for the time period specified

***OSCAR REPORTS (Cont.)***

<b><u>See Pages</u></b>	<b><u>Report Number</u></b>	<b><u>Report Name/Description</u></b>
<b>9.5</b>	<b>63</b>	<b>FMS SURVEY COUNTS</b> This report summarizes FMS activities and arranges the information by category of provider/supplier and type of Federal survey.
<b>9.6</b>	<b>64</b>	<b>FMS COMPARISON OF DEFICIENCIES IN FREQUENCY OF OCCURENCE</b> This report compares aggregate deficiency citation rates for the state, region, and the nation for a given time period in frequency of occurrence order for FMS surveys.
<b>9.7</b>	<b>68</b>	<b>FMS SUBSTANTIAL AGREEMENT</b> This report tallies the responses to Item 18 (Significant Differences Noted Between Regional and Federal Findings) on the HCFA-534 Form.
<b>10.3</b>	<b>70</b>	<b>CLIA LOCKBOX JOURNAL VOUCHER</b> This report tallies the payments received from laboratories through the nightly lockbox process and the adjustments made online to laboratories by processing day.
<b>10.4</b>	<b>71</b>	<b>CLIA LOCKBOX UNMATCHED FUNDS</b> This report lists the monies received through the lockbox process that could not be assigned to a specific laboratory account by the system.
<b>10.5</b>	<b>72</b>	<b>CLIA REFUNDS WITH MISSING EINS</b> This report lists all pending refunds for CLIA laboratories that have missing EINs.
<b>10.6</b>	<b>73</b>	<b>CLIA REFUNDS SENT TO OBA REPORT</b> This report lists all CLIA refunds approved by HSQB detailing the amounts and descriptions of the refunds.
<b>10.7</b>	<b>74</b>	<b>CLIA BILLING STATUS REPORT</b> This report produces a count of CLIA laboratories and amounts paid base on type of application and payment status.
<b>10.8</b>	<b>75</b>	<b>CLIA BILLING STATUS BY SCHEDULE CODE</b> This report produces a count of CLIA laboratories and amounts paid based on schedule codes and payment status.

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**OSCAR REPORTS (Cont.)**

<b><u>See Pages</u></b>	<b><u>Report Number</u></b>	<b><u>Report Name/Description</u></b>
10.9	80	<b>CLIA LABORATORY OWNERSHIP SUMMARY</b> This report tallies the number of CLIA88 laboratories by type of ownership.
10.10	81	<b>CLIA LABORATORY LOCATION</b> This report tallies the number of laboratories in the country by location.
10.11	82	<b>CLIA LABORATORY TYPE OF CONTROL SUMMARY</b> This report tallies the number of laboratories in the country by type of control.
10.12	83	<b>CLIA LABORATORY ACCOUNT STATUS</b> This report lists CLIA88 laboratories with their account payment status.
10.13-10.14	84	<b>CLIA LABORATORY APPLICATION</b> This report lists the information entered from the Application Form for CLIA88 laboratories.
10.15	85	<b>CLIA LABORATORY TOTALS BY SCHEDULE</b> This report tallies CLIA88 laboratories by schedule codes and application types.
10.16	86	<b>CLIA LABORATORY SELECT DATA LISTING</b> This report lists specific data for CLIA88 laboratories (e.g., telephone number, certificate type, effective date of certificate, name and address of laboratory, type of control code, etc.).
10.17-10.18	87	<b>CLIA LABORATORY SPECIALTY/SUBSPECIALTY FROM ODIE</b> This report lists specialty/subspecialty data for CLIA88 laboratories that have been surveyed.
10.19-10.20	91	<b>CLIA LABORATORY MSA CLIA DATA EXTRACT</b> This report is an extract of CLIA lab records for use by Medicaid State Agencies.
10.21-10.22	92	<b>CLIA LABORATORY EXPANDED NAME/ADDRESS</b> This report produces an expanded listing of the name and address information for any CLIA laboratory selected.
10.23-10.24	93	<b>CLIA LABORATORY NAME AND ADDRESS LISTING</b> This report produces a basic listing of the name and address information for any CLIA laboratory selected.

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***OSCAR REPORTS (Cont.)***

<b><u>See Pages</u></b>	<b><u>Report Number</u></b>	<b><u>Report Name/Description</u></b>
10.25-10.26	94	<b>CLIA DEFICIENCY COUNTS PER SPECIALTY/SUBSPECIALTY</b> This report lists the tag numbers for deficiencies found by specialty/subspecialty, including percentages by state, region, and nation.
10.27	95	<b>CLIA LABORATORY COUNTS BY SPECIALTY/SUBSPECIALTY</b> This report counts the number of surveyed CLIA88 laboratories approved for each specialty/subspecialty.
10.28-10.29	96	<b>CLIA LABORATORY APPLICATION AND SURVEY SUMMARY</b> This report produces a summary of application and survey information for any CLIA laboratory selected.
11.2	150	<b>PT ORGANIZATION NAME AND ADDRESS LISTING</b> This report produces a list of approved PT programs.
11.3 – 11.6	151	<b>PT ORGANIZATION ENROLLMENT REPORT</b> This report displays the number, by analyte and test event, of laboratories enrolled in each program.
11.7	152	<b>PT ORGANIZATION CORRECTED SCORES REPORT</b> This report displays the number of corrected scores, by analyte and test event, reported by a PT organization.
11.8	153	<b>PT UNSATISFACTORY/UNSUCCESSFUL REPORT</b> This report displays unsatisfactory (failed) scores and/or unsuccessful (two failures in three events or two consecutive failures) performance.
11.9	154	<b>PT DUPLICATE ENROLLMENT</b> This report displays duplicate enrollments for the same analyte number, test year, and test event.
11.10	155	<b>PT INDIVIDUAL LABORATORY PROFILE</b> This report displays a profile of an individual laboratory's proficiency testing performance.
11.11	156	<b>PT DELINQUENT SCORE REPORT</b> This report displays the number of delinquent scores, by analyte number and test event, for each PT organization.

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***OSCAR REPORTS (Cont.)***

<b><u>See Pages</u></b>	<b><u>Report Number</u></b>	<b><u>Report Name/Description</u></b>
<b>11.12</b>	<b>157</b>	<b>PT EXCUSED NONPARTICIPATION</b> This report displays a list of laboratories with excused nonparticipation in test events.
<b>11.13</b>	<b>158</b>	<b>DUPLICATE SCORE</b> This report displays duplicate scores for the same analyte number, test year, and test event.

**APPENDIX K: MDS Data Elements**

N/A – Not applicable

D/K – Don't Know

I. Background Information at Admission

A. Identification Information

-name, gender, date of birth, social security number, facility provider numbers, reason for assessment

B. Demographic Information

-date of entry to facility, lived alone (prior to entry), lifetime occupation, highest education level achieved, mental health history

C. Customary Routine

-interview of the resident regarding habits about their lifestyle in the year prior to entry in the facility (e.g., alcohol use, contact with relatives and friends)

II. Assessment and Care Screening: Functional Assessment

A. Identification and Background Information

-medical record number, current payment source(s) for nursing home stay, reason for assessment, legal guardian

B. Cognitive Patterns

-memory, indicators of delirium

C. Communication/Hearing Patterns

D. Vision Patterns

E. Mood and Behavior Patterns

F. Psychosocial Well-Being

G. Physical Functioning and Structural Problems

-ADLs assessed

H. Continence in Last 14 Days

I. Disease Diagnoses

J. Health Conditions

K. Oral/Nutritional Status

L. Oral/Dental Status



- M. Skin Condition
- N. Activity Pursuit Patterns
- O. Medications
  - regarding medications resident has received in previous seven days
- P. Special Treatments and Procedures
- Q. Discharge Potential and Overall Status
- R. Assessment Information
- S. State Defined Section
- T. Supplemental Items for Medicare Prospective Payment System
- U. Medications
  - regarding drug reactions and interactions
- III. Resident Assessment Protocols (RAPs)
  - identify RAP problem areas (e.g., delirium, falls, nutritional status, pressure ulcers)

***Source: HCFA's Minimum Data Set, Resident Assessment Protocols and Utilization Guidelines, Eliot Press***

**N/A** – Not applicable

**D/K** – Don't Know